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LECTURES
ON
COMPARATIVE ANATOMY
AND
ANIMAL PHYSIOLOGY,

DELIVERED BY

ROBERT E. GRANT, M.D., F.R.S.E., &c., &c.;

Fellow of the Roy. Coll. of Physicians of Edin.; and Professor of Comparative Anatomy and Animal Physiology in the University of London.

LECTURE XXVI.

ON THE OSTEOLOGY OF CARNIVOROUS QUADRUPEDS.

THERE is much harmony amidst apparent disorder in the works of nature. There are other destructive creatures besides fierce lions and tigers. The juicy leaves of the *dionæa* allure the hungry insects, then crush them dead, and throw their carcasses from the downysnare. The busy animalcules seem intent only on the destruction of their minuter races, each impelled by the hunger of a hundred stomachs. The arborescent zoophytes, with a thousand mouths, are seen to destroy at every instant whole hecatombs of those polygastric animalcules which swarm in the waters around them. In its turn each plant-like animal is the abode of a thousand parasitic crustacea and mollusca that consume the tender polypi, and these parasitic intruders are devoured by the annelides that lurk in tubes, concealed, like serpents, among the branches. The acalepha seize the microscopic crustacea that swarm like animalcules through the sea, and their gelatinous bodies are themselves the prey of mollusca. The velella kills the monoculi, and the janthina kills the velellæ. The tide rolls the detached muscle, as food, into the mouth of the actinia, and the actinia is a mouthful to the fish or the crab. The crustacea are shielded in armour to destroy everything that comes within their iron grasp, but the birds dash their armour to pieces by cleaving them on rocks, and feed upon their living carcass. The teeth of the proboscis of the gasteropod tear the living flesh of the worm, the crab seizes the gasteropod, and the cephalopod stretches its long arms and whets its strong mandibles to make a victim of the crab.

But the fishes have stomachs for them all. Fishes are the larvæ of amphibia, and, like the larvæ of insects, they are intent only upon prey to satisfy their voracious appetite; but the flocks of water-fowl, with appetites as keen, and with an eye and movement suited to their wants, follow along their line of march, and kill them by shoals. The frogs kill the snails that feed upon the turf, the serpent kills the wearied bird returning to its nest, and the crocodile kills the unsuspecting deer attracted by the verdure of the bank.

Most of the quadrupeds we have been hitherto considering are organized to feed on the lowest forms of organized matter, on vegetable substances which are produced in vast and unceasing abundance over the surface of the earth, and possessing so low a degree of vitality, that there is no satisfactory reason to induce us to believe that, while those vegetable substances are bruised and used as articles of food, they suffer pain, or have acute feelings of any kind.

But we find in the order of *carnivorous* quadrupeds, which we are now to consider, beings that are obviously organized for the purpose of destroying only the higher forms of organization, where, from every analogy, we are forced to believe that there are sensibility and feelings nearly as acute as those with which the human body is possessed. We might at first imagine that it was a defect in the economy of nature to form tribes of beings with instincts and with instruments like those of the carnivora, adapted for this

destruction of living animals. We see that the instruments of the carnivorous quadrupeds, their jaws, their teeth, and their talons, are constructed in the best manner for seizing living prey, for breaking their bones, for tearing the flesh from their palpitating limbs. We see in the living state that they possess all the requisite cunning, all the marks of planning to ensnare their victims, and strength to overcome them when taken; nay, we see that nature has greatly assisted them in their destructive propensities, by throwing over many of them a mantle, which is the best adapted by its colour and markings to conceal them from the quadrupeds that are destined to fall their prey; for we see that the tigers, and the lions, and the pumas, and the leopards, and the panthers, and the servals, and the jaguars, have that sort of dusky brown colour thrown over them which is produced by the setting beams of a tropical sun, reflected from the ground where they lie in watchfulness. As many of them are destined to conceal themselves among the brushwood and the fallen leaves, you see that the leopard and the panther, and various others, are spotted and mottled like those decayed and fallen leaves on which they rest, and that their instinct causes them to remain quiet, hidden, and motionless, until the unsuspecting quadruped approaches near enough without perceiving its danger.

When we observe, however, that there are such myriads of animals which are constantly busied in consuming vegetable matter, and which live not only in comparative security, but are the most fruitful of all species, we find that it is necessary that nature should have provided some means for thinning the races of those beings, as they would otherwise, by their myriads and their safety, consume the whole vegetation, and overrun this earth with their progeny. It is necessary for the preservation of all, to maintain the balance among the forms of quadrupeds, and to continue the progressive march of development, that there should be some having all the structure, and the propensities, and instincts, similar to those which we see so highly developed in the carnivorous order. Some of those carnivorous quadrupeds plough the depths of the ocean in pursuit of their prey, as the seals, the otariæ, and the walruses; and we saw the dolphins and the porpoises, belonging to an inferior order, possessing similar instincts.

When we consider these matters in a general way, what at first appears a want of harmony in the system of animated nature, appears in reality to be a beautiful provision to give permanence to all the forms. Man, perhaps, is the most destructive species, as far as relates to animal forms, that has appeared on the surface of this planet; for it is not to feed upon the giraffes that he hunts them from their wilds; it is not to feed upon the elephants, the camels, and various other quadrupeds whose races are now but limited compared with what they once were upon the earth, but often for the gratification of a corrupted taste, or of unnatural propensities which appear to have been developed by civilization. The wild and untutored Indian, with his bow and his arrow, appears to be guided sometimes by more natural feelings in his attacks on the brute creation than the inhabitants of civilized nations. Even from the earliest period we see the influence of man exerted in the destruction of the races of animals, and even of entire species; observe the sanguinary spectacles of Rome and other civilized courts. So that the carnivorous quadrupeds are not the only beings that have thus a powerful influence in checking the development and spreading of the more protected and fertile species over the earth. The progress of cultivation even in removing or destroying extensive forests, which serve as a retreat for quadrupeds, or applying the trees to the uses of man, changes the surface of islands and continents, and removes the possibility of many races propagating and continuing in safety, and thus tends to their gradual extinction. Without the lions to thin their race, how would the gigantic elephants and the powerful rhinoceroses overrun the east, and the ponderous hippopotami swarm in the rivers of Africa. There are tigers and leopards, because the rich plains of Africa and Asia were not destined alone for hordes of buffalos, and antelopes, and deers, and camels, and dromedaries. The lamas and the pacas are not more able to overrun the New World, nor the myriads of rodentia that swarm in the vast savannahs; the jaguars, the pumas, the ocelots, and a hundred other carnivora, are the checks to their disproportionate increase. And similar antagonists are found in all countries to the too rapid increase of herbivorous species.

Looking at the instruments with which the carnivorous quadrupeds are furnished for their living habits, for the destruction of living animals, we see every thing planned in the most perfect manner. We see all their bones possessing great density and strength; ossification has advanced in them to as high an extent as in any of the class mammalia. This is indicated by the density of their bones, by the quantity of the phosphate of lime which

enters into their composition, and, consequently, the compactness and solidity of the parietes of all those bones, and the strength of the processes for the attachment and the insertion of powerful muscles. We see it especially manifested in those parts of the skeleton which are to serve more immediately as the instruments of destruction, as in the head, the feet, and the arms.

In the skulls of carnivorous quadrupeds, as in this of the *lion* (*Fig.* 105), we

Fig. 105

observe that the transverse ridge of the occipital bone is remarkably high, sharp, and prominent, and also the longitudinal ridge extending between the parietal bones; that transverse occipital ridge serves for the attachment of the principal muscles that connect the head behind to the trunk of the body, and assist in the tearing up of the masses of flesh from the dead quadruped which is held down by the arms. It is in consequence of this, also, that the transverse processes of the atlas and the spinous process of the axis are so largely developed in carnivorous quadrupeds. The enormous projection of the longitudinal parietal ridge, which is so extraordinary in this hyena, in this badger, in this tiger, in this lion, and in most other carnivora, depends on the great development of the temporal muscles, those powerful muscles which are to act upon the very high and very large coronoid process (*Fig.* 105, *f*) of the lower jaw, and bring that jaw with great force against the upper. The parietal bones early unite, and completely anchylose, in the carnivorous quadrupeds, so that all trace of sagittal suture early disappears, in order that the head may not be torn asunder by the vigorous action of the temporal muscles.

In the interior of the cranium, which is here capacious for a largely developed brain and complicated instincts, we observe an osseous plate, passing from the one side in an arched form to the opposite, and situated between the cerebellum and the posterior part of the hemispheres of the brain. This ossified tentorium, so largely developed in the carnivorous quadrupeds, strengthens the skull, supports the brain, and serves to check the impulse of the hemispheres of the brain upon the cerebellum during the leaping and bounding motions of these active animals in attacking their prey. The feline carnivora are mostly nocturnal animals, lurking in jungles, in caverns, or in obscure places, and springing suddenly upon their prey, from or to considerable heights, and coming down with as great force as they can command, to strike with the arms, to stun the prey, and to bring it to the ground, that they may the more easily hold it in the position most convenient to have it torn to pieces. The impulse of those high leaps would also affect many of the internal organs of the body, and especially the soft organs contained within the cavity of the cranium, were it not for the peculiar soft construction of the feet, and the subdivided form, and the elastic muscular force, of all the extremities.

The brain is, in proportion, larger in carnivorous than in ruminating animals. This is necessary for the development of those instincts and that cunning which the carnivorous quadrupeds require, in order to enable them to ensnare and seize upon their less sagacious and less suspecting prey.

In examining the ruminating quadrupeds, we already saw that it was a better provision in nature to endow them with a comparatively small centre of the nervous system, so that, with less sensibility and less cunning, they suffer less, and fall more easy victims, as designed by nature, to carnivorous animals, which, in all their physical structure, as well as in their intellectual operations, always indicate a superior degree of development to vegetable-eating quadrupeds. The carnivora are superior also in the development of their muscular, respiratory, and vascular systems.

The temporal bone has its zygomatic process extended almost to a right angle from the squamous portion of the bone; it then suddenly bends forward and upwards, and produces an enormous zygomatic arch. Thus a small portion of this part of the temporal, with its deep transverse glenoid cavity, would indicate to you the great development of the zygomatic arch, of which it formed a part, and also the form of the condyle of the lower jaw. The zygomatic arch is not only of great extent laterally, but it is also of great depth from its upper to its lower margin; and you will observe, that viewed laterally, it has a considerable curvature upwards. In some of the animals we have already examined, as in the

mole and other rodentia, the curvature of the zygomatic arch is in the reverse direction—it is downwards. Where it is thus arched upwards, as in the carnivorous quadrupeds, the zygomatic arch has much more strength than it has when in a straight line or directed downwards. It presents thus a great and wide passage for the large temporal muscles inserted on the ramus and coronoid process of the lower jaw, and an extensive surface of attachment for the powerful masseter and zygomatic muscles. This zygomatic process of the temporal bone you will observe presents upon the lower surface, a deep transverse glenoid cavity for the reception of the broad rounded transverse condyle of the lower jaw. It therefore, though alone, obviously indicates that the condyle of the lower jaw was directed transversely, and that it also had a rounded extensive articular surface. This articulation is thus rendered, by its prominent anterior and posterior margins, extremely secure, but at the same time extremely limited in its motion. It exhibits only the ginglimoid kind of articulation presented by an artificial hinge, or by the joints of a crab moving only in one direction, so that the sharp cutting molar teeth of the carnivora act with great precision; but the jaws also gain great strength by this shortness of the ramus, this breadth of the condyle, and this limited extent of motion. The orbits are here very imperfect, and are quite continuous with the temporal fossæ. There is not even a ring of bone passing around the margin of the orbits. Thus the temporal fossæ gain as much as possible upon the organ of vision, so that there is less space for fatty substances to occupy the back parts of the orbits. And here even the temporal muscles, which are advantageously inserted far forwards on the lower jaw, could influence a little the expression of the eye. By clenching the teeth, by acting on the temporal muscles, the eye, without much action of the eyelids or muscles of the eye-ball, could be rendered slightly prominent, and be made to assume the glaring appearance so terrific when these animals are excited.

All these carnivorous feline animals have the face broad, short, and truncated. It is obvious, from the force they have to exert with the jaws, that if the face were much lengthened, it would be very much weakened; but by being thus truncated and short in the muzzle, the temporal muscles act much more advantageously upon the lower jaw, as also do the masseter muscles, from their insertions being brought so far forwards from the condyle, or the point of resistance and of rotation.

We observe that the superior jaw-bone upon each side lodges at its anterior margin the large canine tooth, which forms a long prominent convexity on the outer surface, indicating the greatness of the socket, and the great extent of the pulp and of the fang. The nasal process of the superior jaw-bone is of great breadth, and you perceive that by its development, as well as by the development of the nasal bones laterally, the orbits in the carnivorous quadrupeds are thrown considerably to the side of the head. From the great lateral extension however of the zygomatic process of the temporal bone and of the molar bone, the orbits are directed much more forwards, and are more nearly parallel than in the broad heads of herbivorous quadrupeds. The muzzle and the whole head are lengthened in vegetable-eating quadrupeds, to contain a great number of large grinding teeth, and the long action of these instruments on their coarse food, necessitates a large development of their salivary glands; but look to the dental system of these lions and tigers,—to the small space occupied by their teeth. Their teeth are for tearing and cutting, not for masticating or grinding, and as their food remains no time in the mouth, their salivary organs are very small. The digestion of their highly-nutritious food is easily effected by their stomach and intestine, without assistance from the mouth, and it is from the nutritious quality of their food that their alimentary canal is short and narrow, their stomach simple, and their cæcum-coli very small, or wanting. The numerous chemical elements of their animal food would have the balance of their affinities more completely disturbed, and would give rise to combinations and decompositions hazardous to their life, if that food were detained in large and complicated stomachs, or in a long and capacious intestine. The mucous coat is here much less developed throughout the whole of the alimentary canal than in herbivora, but the exterior or serous coat is thicker and stronger. So that from a knowledge of the relations which must necessarily exist between all the organs of the body, we might judge, from the form of influential parts of the skeleton, respecting the forms and conditions of the soft parts in more immediate dependence upon them, and this kind of reasoning is constantly employed in determining the nature and the relations of all extinct forms of animals.

The lachrymal bone, which we saw brought out from the orbit and extended down over the face to lengthen that part in herbivorous quadrupeds, is here very small, and almost as completely enclosed

within the orbit as we find it in the human skull. The infra-orbitary foramen, for the transmission of the second branch of the trifacial nerve, is very large in most carnivorous mammalia, on account of the great development and strength of the muscles of the face and lips, and the great size of those feeling appendages, the bristles, which project from the upper lip. These bristles we see in the aquatic species, in the otters, the seals, the sea-lions, and the walruses, as well as in the land carnivora. The enamel of the teeth is of great density, and so are the bones of the skeleton in the animals of this order, and the enamel is of great thickness over the crowns of the canine and the molar teeth. The canine teeth are here of equal importance in both sexes, and they manifest less sexual difference than in almost any other order of quadrupeds, where they are generally less important organs. You observe the magnitude of these upper canine teeth in the walruses, where they are developed in an extraordinary degree —curved, like the tusks of the elephant,— but, as you observe, they are here distinctly implanted in the upper-jaw bones, and not in the inter-maxillary bones as they are in the elephant; therefore, they are not like the tusks of the elephant incisor teeth, but are distinctly canine teeth. They are however employed in the walrus, not as organs for tearing prey, but, generally, as instruments for climbing, or to strike with downwards; but having no canine teeth to oppose to them in the lower jaw, they are not employed as organs to seize or to subdivide the food, like those of the tigers, lions, and other carnivorous quadrupeds.

The canine teeth of the upper jaw of this order have between them in each intermaxillary bone three incisor teeth, so that there are six incisors above in carnivorous animals. In the lower jaw there are also six incisor teeth. The outer pair of incisors are generally much larger than the two inner pairs, but all of them are proportionally small in these quadrupeds. The molar teeth of carnivorous quadrupeds have, most generally, the crowns acuminated to a sharp-cutting ridge directed longitudinally. These cutting ridges of the upper do not meet those of the lower jaw, but generally pass close along their outer surface, so that, like the cutting edges of two knives meeting, they cut off masses of the substance against which they are forced. The canine teeth, which are organs of prehension and not of mastication, serve to fix the jaws into the masses of flesh which are to be torn with great force from the bones, and the molar teeth serve to cut the mass thus torn into smaller portions, which are bruised between the tuberculated teeth, and readily conveyed into the stomach. There is thus little mastication or subdivision of food in true carnivora.

The canine teeth of carnivorous quadrupeds are remarkably long, curved, and conical in their form, and those of the lower jaw pass in front of those in the upper jaw. Their alveoli are much longer and more prominent externally than those of the molar or the incisor teeth, and from their great development they require a vacant space in the opposite jaw for their reception.

The molar teeth of carnivorous quadrupeds are of three principal forms, and those forms are important in a zoological point of view, as well as connected with their different kinds of animal food. The posterior molar teeth in these animals have generally a broad and tuberculated crown, in form quite unlike the teeth that are placed before them. The two with very broad crowns which you observe on each side of the head in the jackal, at the back part of the upper jaw, are called the tuberculated molar teeth. In the lower jaw you observe there are also two corresponding tuberculated teeth, though much smaller. Now these are teeth which have comparatively little to do with the carnivorous disposition of the animals, being adapted to bruise rather than to cut the flesh. They are teeth somewhat similar in their form to those we see in animals that feed on vegetable substances, as in the lower quadrumana. In the lion, in the tiger, in the other feline animals, you see but one, and a very small one, of these tuberculated teeth, which I have shown you so large in the jackal. The other molares of these feline species have the cutting acuminated crown, so characteristic of the carnivora. In the bears, on the contrary, they are provided with those broad, flat, rough crowns, covered entirely with enamel, which point out the vegetable nature, or the succulent quality, of the food in these species. These flat molares you observe in this great extinct species, the cavern-bear (*Fig.* 107), so abundant in the diluvial caves throughout all Europe, and so remarkable for its gigantic size, and for the projection of the forehead (*Fig.* 107, *d*) immediately above the root of the nose.

Now it is interesting to attend to this form of the posterior molares in carnivorous quadrupeds, for in proportion to the extent of the jaw occupied by these tuberculated molar teeth, are the animals found to have less and less of the carnivorous propensity. The land-bears prefer vegetable food, although they have, like

Fig. 107.

carnivora, six incisors (*Fig.* 107, *a*) above and below, and the usual large canine teeth (*Fig.* 107, *b*). The molar teeth are those which are by far the most influential, and the most important, in determining the characters of quadrupeds. The form of one molar tooth is worth, to the geologist for example, who often can obtain nothing else but those parts, the form of all the rest of the teeth in the jaws, and worth half of the rest of the skeleton. Many animals which occur in a fossil state we know nothing about except by the teeth; we know nothing of them except by analogies drawn from their teeth; yet we can often reason with great safety regarding their whole skeleton, and trace their analogies with existing animals, and form an idea of their living habits and history, from the teeth alone.

In the hyænas, the ratels, the proteles, and in the genus felis, which comprehends all the lions, and tigers, and leopards, and panthers, and cats, and an extensive series of the most ferocious of those carnivorous quadrupeds of both continents, there is, on each side of the upper jaw, but one tuberculated molar tooth. We have another group of the carnivora, comprehending the polecats and ferrets, the martens, the chinches, and the otters, the badgers and wolverenes, which present one tuberculated molar tooth on each side above, and the same below, and are only so much the less ferocious in their characters.

There are others, such as the civets, the paradoxurus, the ichneumons, the genetts, and others, which have two tuberculated molar teeth above, and one below, on each side. Others, as the dogs and wolves, have two above and two below. Those which have on each side, above and below, but one tuberculated molar tooth on the back part of the jaw, are observed generally to have this long cylindrical narrow body, and are nearly as cruel as the most blood-thirsty of the carnivorous animals. These are the long serpentiform carnivorous animals, which pass through the narrow windings of the burrowing quadrupeds, pursuing them by an acute sense of smell, and encountering them in their dark places, fighting desperately, and dragging their victims from their recesses. But those which have two tuberculated molar teeth are observed to be of a milder character, and to be much more easily domesticated, to have less of the carnivorous propensity, and they can often be fed upon a mixed kind of food, or entirely on vegetable matter. The bears, which, of all the animals of this order, have the greatest number of broad-crowned tuberculated molar teeth, subsist chiefly on vegetable food.

Anteriorly to the tuberculated teeth in the upper jaw of most carnivora, as in these tigers and lions (*Fig.* 105, *d*), you observe a large prominent tooth, with a small tubercle at the inner part of its base. That prominent tooth is called the *carnivorous* tooth. It is placed between the *tuberculated* molar tooth and the *false* molares, which are more in front. This carnivorous tooth is an important tooth, from the characters which it affords for the distinction of species. It is the most prominent in the upper jaw, excepting the canine teeth. It is by much the most prominent of all the molar teeth; and it partakes of the character both of the false molares before, and of the tuberculated molares behind it; for you observe that at the inner margin of its crown it presents a tubercle, the form of which it is interesting, for zoological distinctions, to observe. Many of the carnivorous animals so much resemble each other, the species are so numerous and so closely approaching to each other, in so far as the skull is concerned, that it is difficult to identify them by their bones or hard parts without the closest attention to the minutest characters of their teeth; and one of the principal characters is that which is afforded by the form of this tubercle of the carnivorous tooth, not by the form of the canine teeth.

As many of these quadrupeds feed upon the softer flesh of the prey which they seize, and which they devour in the living state, you might naturally expect that their teeth would retain more of their original character and form through life than those species which feed indiscriminately upon the hard parts of animals, together with the soft, or more exclusively on the bones. Thus, when you compare the specimens before you of the aged hyæna, with the jaws of the young hyæna, you perceive the striking difference in the forms and whole appearance of the teeth. In the old animal the molar teeth have been rubbed and worn almost to flat crowns, rounded on their upper surface; but in the young animal, where they are much less worn, they present the same acute cutting edge which we see in the true feline animals. This rapid wearing of the

hyæna's molar teeth is the obvious result of the action upon the hard bones upon which those aimals chiefly subsist, delighting principally to feed on the marrow which fills the interior of the long bones.

The teeth and the whole skeleton of these hyænas (*Fig.* 106) are interesting on account of their occurring so abundantly

Fig. 106.

in our diluvial caves, and in those of all Europe; and in comparing the jaws which are found in a fossil state with those of the existing hyæna, we see that they are scarcely larger than those of the existing animals; but from the thickness and massive proportions of their bones and their teeth, they are deservedly regarded as a distinct species from any now living in Africa or Asia. The base of the crown of the molar tooth in the hyæna has a very permanent ridge of enamel, protecting the soft gum from the hard spiculæ of bones which this animal is in the habit of bruising and pounding between these strong instruments. The enormous strength of these jaws is obvious in this aged specimen,—and the strength of the muscles is indicated by the very great development of the longitudinal ridge formed by the junction of the two parietal bones. A great rough surface is here presented for the attachment of the temporal muscles. The strength of the masseter muscles here, is obvious, from the great size and strength of the zygomatic arch; hence the remarkably compressed form of the head in these hyænas, as you perceive in this skull of the striped hyæna (*Fig.* 106, *e*), so common in Asia and the north of Africa.

There are two very different forms of the skeleton in the animals of this order carnivora. In one of those forms you observe, as in the bear and in the badger, that the whole palm of the hand is placed flat upon the ground; and so is the sole of the foot; - they are the *plantigrade*. The plantigrade carnivorous quadrupeds have much less of the carnivorous disposition, are more slow in their movements, have less marked, internally, the organization which is characteristic of the true carnivorous or the feline animals. In another and the most extensive group, as you observe in the lions and leopards before you, the quadrupeds rest more nearly upon their tiptoes, possessing, therefore, much greater elasticity and softness in all their movements than the other group; they are called from this character *digitigrade* carnivorous quadrupeds. There is great strength in both these groups,—in all the processes of the vertebræ of the neck, as you observe in the skeleton of the lions and bears. I mentioned to you formerly the great magnitude of the transverse processes of the atlas, and of the spinous process of the axis, but you observe that the other cervical vertebræ have also their spinous processes of considerable length, and likewise their transverse processes. There is great mobility and flexibility, accompanied by great strength, in all the bones and articulations in the vertebral column of carnivorous quadrupeds. The ribs are much more slender and narrow, and surround a less portion of the trunk than we saw in the large trunks of the ruminantia, and in most herbivorous animals, where they are much broader, and extend much more backwards over the abdomen. They have greater mobility in consequence of this slender form, and the whole chest has greater capacity as well as greater motion. The respiration is also more quick in carnivorous quadrupeds, and more extensive, from the great capacity of the lungs, and from the quantity of their blood. You observe that in the lumbar region there is a greater space, destitute of ribs, and free for action, and where greater motion is admitted, by the form of the bones, in every direction, upwards, downwards, and laterally. The transverse processes of the lumbar vertebræ are directed at an acute angle forwards. They are not extended outwards at right angles to the column, as we saw so frequently in the large-bellied ruminating and other herbivorous quadrupeds, but are directed at a very acute angle forwards, towards the head.

The *psoæ* muscles, which pass down through the pelvis to the femur, from their attachment to these processes have greater length and a more extensive surface for their insertion by this sudden direction forwards of the transverse processes, and you observe the same direction taken in the lumbar region by all the other processes of these vertebræ, by which they are strengthened against the force which pulls them backwards. The scapula of carnivorous quadrupeds presents a very broad and extensive surface, for the powerful *supra* and *infra-spinati* muscles. It has the short, broad, and rounded form which is commonly seen in the highest orders of quadrupeds. It has a very different shape from the lengthened tapering form which

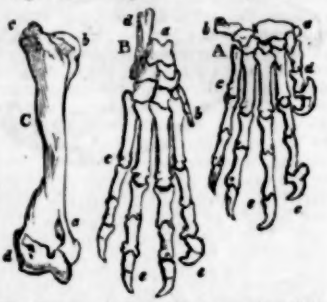
we saw so common in ruminating and other feeble-limbed quadrupeds; and the crest of the scapula is here very long and deep, with a prominent acromion at its extremity and a very short coracoid process.

In quadrupeds where the humeri require great security in their articulations with the trunk, and where their motions are proportionally limited, we generally observe that there is interposed a strong clavicle, completely ossified, as we saw in most of the rodentia, and as we see in the wingless *insectivora*, in *chiroptera*, in *quadrumana*, and in man, passing from the sternum to the scapula. But feline and other carnivorous animals use the arms as instruments of offence, as well as of progression; and in raising the arms to inflict a blow, they throw the whole scapula, and the parts attached to it, backwards upon the chest, which extensive motions would be completely prevented, were the scapula fixed by a solid clavicular bone to the sternum. It is on this account that you observe the clavicles in the carnivorous quadrupeds, to exist only in a very imperfect rudimentary state. Here, in the skeleton of the lion, the rudimentary clavicle is only about two inches and a half in length, yet the distance between the sternum and the scapula in the natural position of the arm, is more than double that length. It is here, as generally in carnivora, a thin slender ossified piece, which terminates at both its extremities in a soft, flexible, and cartilaginous condition, without reaching either the scapula or the sternum. This greatly facilitates the extensive motion necessary in the arms of those carnivorous quadrupeds for the various feats of their active and agitated life, and prevents any violent impulse from being communicated through the arms to the trunk.

The humerus, the radius, and the ulna, are large and strong bones, especially at their extremities, and all their processes serving for the insertions of the muscles, are here strongly marked. The lower part of the humerus immediately above the inner condyle, has, in all the feline species, a perforation through which the ulnar artery passes, as we see in the thumbless, long-armed, climbing spider-monkeys of America. This perforation is a means of protecting the ulnar artery against pressure, as it passes downwards and forwards through this aperture, as you see in this humerus of the tiger (*Fig.* 108, *C*). Thus, while those ferocious quadrupeds are embracing their prey, the pressure exerted against this inner part of the humerus is kept from affecting the circulation of the blood in the forearm, by the artery passing through this foramen. The radius is deeply grooved at its lower extremity, and the olecranon of the ulna is large, long, and compressed.

The powerful, though soft and flexible hands of these carnivorous quadrupeds, have the bones in the carpus generally seven in number, being one less than the human, by the anchylosis of their scaphoid and lunar bones, as you observe in the strong hand of the tiger (*Fig.* 109, *A*).

Fig. 108 *Fig.* 110 *Fig.* 109



The bones of the metacarpus, by their shortness and smallness, here correspond with the subdivided form of the whole hand, and present a striking contrast when compared with what we saw in the long anchylosed canon bones of the imperfect hands in ruminating animals. The phalanges of the fingers are long and strong, with very secure articulations. The last, or ungual phalanx, in the feline species, is directed upwards at right angles to the direction of the rest of the phalanges; and thus by its direction upwards, and folding backwards and obliquely inwards over the penultimate phalanx, it allows the claws to be retracted, or folded backwards between the toes, as into a sheath; and thus affords the means of keeping them constantly sharp and free from abrasion, for grasping or tearing their prey. In some quadrupeds, however, as you see in the wolves, the foxes, the dogs, and in the quick-running quadrupeds that come nearest to these, where they are less employed for the purpose of prehension, for which they are used in the feline animals, but are more employed for protecting the feet and assisting in progressive motion, they are not capable of being thus retracted, and they are, therefore, rapidly worn, and approach in this respect more to the character and form of the hoofs which protect the toes and feet of herbivorous quadrupeds.

You will observe the iliac bones and the pelvis of those light-bodied and active carnivorous animals, to be directed in a very

oblique manner backwards, almost in a line with the sacral and coccygeal vertebræ; so that the cotyloid cavity for the head of the femur is thrown backward to a distance from under the sacro-iliac articulation. This is an arrangement we have already seen in the light-footed deers and antelopes, by which a certain degree of elasticity is given to this region of the trunk; so that in coming with force from an extensive leap, down upon the posteterior extremities, the impulse carried through the subdivided feet and legs to the femur, would here be first communicated by the cotyloid cavity to the pelvis, then by the strong iliac bones directed forwards to the sacro-iliac articulation, and to the vertebral column, and by passing thus through so many joints to the upper part of the legs, and in this zig-zag manner, the effect of the leap or fall would be lost before it reached the vertebral column and the trunk, and would not lacerate or injure the contained viscera. This is a very different form and construction from what we saw in the heavy trunks of the pachyderma, where, in order to give greater strength to support the weighty carcass, the pelvis is directed more perpendicularly downwards, the cotyloid cavity being by this means placed as nearly as possible right under the sacro-iliac articulation and the horizontal vertebral column and trunk.

In the plantigrade carnivorous quadrupeds, you observe that many of these characters are much less marked than we have seen in the larger feline animals. Their muzzle is proportionally more lengthened, and there is thus greater space allotted for the insertion of a greater number of molar teeth, with flat crowns, adapted for the mastication of fruits, vegetables, and other substances on which the bears chiefly feed. We observe that there is less mobility in every part of their skeleton,—in their trunk, and in their extremities,—that their feet obviously possess less flexibility where they repose flat upon the whole planta, and present a large base to support the trunk, often erect, upon the ground. There is less vigour, less quickness in all their motions, than in the true digitigrade carnivorous quadrupeds. Their heel projects much more backwards, by the extension backwards of the calcaneum, as in the human foot, and indeed there is a striking resemblance in the bones of the anterior and posterior extremities of the bears to those of the human arms and legs.

The bones are the same in number in the tarsus, metatarsus, and the whole foot of the bear, as in the human foot. The astragalus here occupies an advanced position on the calcaneum, corresponding with that of the human foot, from the great projection of the tuberosity of the calcaneum backwards. The navicular, the cuboid, and the three cuneiform bones, agree in form, and occupy the same position, and all the toes of the foot, like the fingers of the hand, are here fully developed for prehension in these climbing, vegetable-eating, slow-moving quadrupeds. In most of the feline carnivora, the foot is long and slender, and the inner toe is almost wanting, as you observe in the foot of the tiger (*Fig.* 110, *B*), where the bones of the tarsus and metatarsus have a lengthened form; four toes only are continued to the ground with three phalanges in each, and the rudiment of the inner toe (*Fig.* 110, *b*) is as minute as that of the thumb on the hand of the hyæna.

As the otters pursue their prey through rivers and lakes, the seals and sea-lions and walruses seek theirs in the ocean, and have, therefore, the bones of their arms and legs adapted for progressive motion through that dense medium. The skull of the seals and the bones of their trunk agree with those of the animals of this order, and the form and size of their canine teeth, but their incisors are less numerous, and more deciduous, as in most marine animals, and their molar teeth vary much in form and in number. By the shortness of their nasal bones, the nasal aperture is large, and their valvular nostrils are high and oblique. In the walrus the nasal aperture is raised still higher by the enormous development of the superior canine teeth and their alveoli, so that these marine carnivora form an approach in this character to the cetaceous mammalia which are destitute of legs, and are, therefore, more confined to their aquatic element. From the flatness of the oblique crowns of its cylindrical molar teeth, the walrus can as easily bruise between them the marine plants as the fishes, and it partakes of both kinds of food. In the front of its tapering lower jaw, compressed between the large upper tusks, it has neither canine nor incisor teeth, and in the adult state it has only one small incisor on each side above; so that by the toothless front of its mouth it approaches to many of the land herbivorous quadrupeds. The trunk of the seal and the walrus tapers like that of a porpoise, and the pelvis is small, narrow, and compressed. The scapula in both has the broad, rounded, vertebral margin and elevated crest common in the land carnivora, and the bones of the arm and forearm are very short, but of massive proportions. The olecranon of the ulna and the lower end of the radius are remarkably dilated, and the hand, which is large-

ly developed, to strike the water, has the thumb the largest and the longest finger, as the inner toe is on the hind feet. The iliac bones are suddenly extended outwards from a very broad sacrum in order to give a favourable direction and extensive surface to the extensors of the femur. The pubic bones meet at an acute angle, and form a narrow, compressed symphysis. The femur, like the humerus, is very short and broad, and the tibia has a curved sigmoid form most striking in the seals. The fibula in both is developed throughout and strongest next the foot. The outer and the inner toes are the longest, and the middle toe is the least on the hind feet of the seal, so that these webbed extremities when expanded appear like fins with a crescentic margin, but in the walrus the toes enlarge regularly from the inner to the outer. Their expanded and webbed extremities are their organs for progression through the sea, but their motion is greatly aided by the extent and mobility of their lumbar region.

The carnivorous mammalia form thus a great natural division of the class, connected together by their carnivorous propensities, and by the organs which that instinct immediately requires. As their kind of prey, and its situation, vary, we find endless varieties of the general type in the forms of their organs of prehension, mastication, and progressive motion, a minute attention to which is of great importance to the zoologist and to the geologist, as serving to characterize the innumerable existing and extinct species. The bones of seals and walruses occur in tertiary deposits now remote from the sea, and those of otters are found in caves and diluvial deposits. The remains of numerous extinct feline animals have been met with in the tertiary sand of Eppelsheim. The bones of weasels, foxes, dogs, badgers, wolves, wolverenes, and numerous extinct species of bears and hyænas, abound in diluvial caves, mingled with the gnawed and broken bones of herbivorous quadrupeds which have fallen their prey. Even the osseous breccias, now filling the ancient fissures of rocks, are observed to contain the remains of extinct bears, coati-mondis, foxes, dogs, wolves, weasels, and several feline species. Bones resembling those of the common fox have been found in the tertiary calcareous slate of Œningen, and bones very closely resembling those of foxes, civets, coati-mondis, and hyænas, have been met with in tertiary gypsum in the Paris formation, and in Wurtemberg.

HOTEL DIEU, PARIS.

CLINICAL LECTURES on SURGERY

DELIVERED BY

BARON DUPUYTREN,

During the Session of 1833.

Revised (before translation) by the Baron himself in the fascicuii of his "Lecons Orales de Clinique Chirurgicale," published periodically by G. Bailliere, Paris.

TRAUMATIC EMPHYSEMA.

On Emphysema produced by Fracture of the Ribs, with Laceration of the Pleura and Lung.

Case 1.—Gentlemen, chance conducted to the Hotel Dieu in December last, two individuals affected with traumatic emphysema, in different degrees of severity. As far as regards your instruction, this was a fortunate circumstance, as you have thus an opportunity of examining the same disease under different forms and characters, depending on the nature, diversity, and violence of the causes which gave rise to it in each individual case. One of our patients was a water-carrier, who had been thrown down and run over by a car; the wheel passed across the left side of his chest, and although the car was not loaded, this weight was sufficient to produce the disorders which I now proceed to describe to you. The man coughs, is much oppressed, and has a full, frequent pulse. We examined the right side of the chest with the greatest attention, and found no injury; but on the left side there existed severe pain about the precordial region, which was very sensible to the touch. When the hand was applied over this spot, we felt a sensation similar to that produced by the rubbing of a fractured rib during the respiratory motion of the chest; the sound was sensible to the ear, which also discovered a sensation analogous to that resulting from the falls of a great number of drops of water, one after the other. There existed a good deal of tumefaction over the rib, but without any pain, change in the colour of the skin, or any other symptom of inflammation; the swelling could be displaced by the hand, and made to pass at will from one part to another. During this manœuvre we felt a well-marked crepitation, similar to that produced when the skin of an animal is blown up previous to his being skinned. These symptoms indicated, beyond all doubt, the existence of a fracture of the rib, and of emphysema, that is of infiltration of atmospheric air into the subcu-

taneous cellular tissue. However, the patient's life does not appear to be in any danger; the emphysema is at present confined to the left side of the chest, and inconsiderable. We have no reason to think that the internal organs are attacked, and experience teaches us that the air is quickly and readily absorbed when it is confined within a small space, e. g. a few cubic inches. The case is far different when the air is spread, not only over the whole cellular tissue of the surface of the body, but also that of the organs contained in the chest and abdomen; where we have not only infiltration, but also effusion of air in the great serous cavities. Such was the case of a patient concerning whom I shall presently speak to you. In the meantime reflect on the concomitant circumstances, the direct cause of the emphysema in the individual case now before us; without doubt the rib was fractured by the wheel passing over it, and the pleura, with perhaps some portion of the pulmonary vesicles, ruptured in a greater or lesser extent. In the present instance we conclude that the laceration was inconsiderable, from the small quantity of atmospheric fluid which escaped. Let us now consider the mechanism by which this infiltration is formed. We can easily understand the production of emphysema, when, in consequence of some old pleurisy or pleuropneumonia, there exist organized adhesions between the two surfaces of the pleura, thus establishing a continuity of tissue between the surface of the lung and the thoracic parietes; the air passes directly from the interior of the lung into the cells of the newly organized membrane, through which it is gradually conducted to the subcutaneous cellular tissue. When such adherences do not exist, the inspired air partly escapes by the opening made in the surface of the lung, and is spread through the neighbouring tissues and in the cavity of the pleura. From these points it is expelled in every direction, partly by its own elasticity, and partly by the action of elevation and depression which takes place when we breathe, and gradually becomes infiltrated into the cellular tissue of all the organs, whether external or internal. When the quantity of air is considerable, it pervades not only the parietes of the thorax and abdomen, the extremities, scrotum, head, and neck, but the pleuræ, the mediastinæ, the pericardium, and even the cellular tissue uniting the various elements which compose the lungs. The patient to whom I have drawn your attention was bled on the day of his entry into the hospital. I thought it advisable to take some more blood on the following day. Compresses saturated with cold lotion were placed over the injured rib, and confined by a bandage, which surrounded and fixed the trunk. The latter means was employed with the idea of suspending the respiratory action in the external muscles, and compelling the patient to breathe by the diaphragm, in order to favour the consolidation of the fractured rib, and oppose as much as possible the causes of the emphysema. We have sufficient examples to prove, that a man may continue to respire by the diaphragm alone; in fact, this takes place whenever the exterior muscles have become paralyzed in consequence of an injury to the upper part of the spinal marrow.

Case 2.—The other patient, of a strong constitution, having been engaged in a quarrel, was thrown upon the ground by his adversary, who applied numerous kicks to the front of his chest. Several of his ribs were thus fractured, and the fragments being driven in with violence, had wounded the lung in a very severe manner: an enormous emphysema was the result. At first the shoulder was attacked, then the anterior and posterior regions of the chest, the neck, and, finally, the abdominal region, with the testicle. This man was also affected with an old asthma, a circumstance very unfavourable to the re-establishment of his health. An emphysema, carried to this degree, is always, Gentlemen, a very alarming disease. The infiltration makes a terrifying progress; the atmospheric air reaches rapidly, as I have before noticed to you, the cellular tissue of the internal organs, and the patient is soon reduced to a state when respiration is impossible. I have seen several patients taken off, in a state of extreme agony, by suffocation arising from this cause. You may, therefore, judge the condition of your patient still more dangerous, when the functions of the respiratory system are attacked at one and the same time by a severe asthmatic affection, and by an emphysema of the kind now before you: in such cases the patient is cut off very quickly. I had not myself any hope of saving this old man. You must have noticed, in fact, one day, the deep anxiety which agitates him, and the futile efforts he makes at articulating a few words in answer to the questions addressed to him: at each inspiration a fresh column of air escapes by the opening in his lung and aggravates his position. There is not only, in the present instance, infiltration of air, but affusion of the atmospheric fluid into the great cavities. The expectoration is bloody, which announces a severe lesion of the pulmonary organ, and the pulse small and hard. The efforts of art are vain against accidents of this

serious nature: what, in fact, can we do? Employ the means which were successful in the first case; this would only shorten the period of death, which already approaches with sufficient rapidity; for, in the present instance, the compression of the chest by a bandage could only increase the patient's agony. Incisions of the skin have been proposed in order to let out the infiltrated air; but I have often tried this means, although I never had any confidence in it, and have made several openings on different parts of the body, and chiefly over the great pectoral muscle. The result has never been beneficial, and I think it unnecessary now to explain to you why. If we had to do with a trifling emphysema, circumscribed by a small space, where we entertained a well-founded hope of combating, by appropriate treatment, the cause which produced and kept it up, and where, consequently, the organic lesions were not extremely severe; in such cases, Gentlemen, you can conceive how incisions may prevent a further infiltration of air, by opening for it an external escape; but in cases analogous to that now before you, this resource is altogether insufficient. (In a few hours after the termination of these remarks the patient died: the external surface of the body was tumefied to a great degree, but without change of colour in the skin; the swelling was soft, irregular, easily depressed, and moved by the hand, and accompanied by the distinguishing crepitation. Internally, the mediastina contained a vast quantity of air, and on the interlobular tissue of the lungs was infiltrated. Three ribs had been fractured on the right side, and here the lateral surface of the lung was deeply and extensively lacerated.) The state of our first patient gives a favourable contrast to this one; in about five days he ceased to suffer any pain or uneasiness when he coughed. The expectorated matter did not present any trace of blood; the infiltration had nearly disappeared; the pulse was good, the respiration very little embarrassed, and the appetite commencing to return. In both these cases, Gentlemen, the emphysema was the most important symptom, and in the latter it was carried to such a degree, as to constitute of itself a most dangerous affection, independent of the severe injury from which it resulted. In many other cases it belongs to symptoms of secondary importance, and is not very easily recognised; however, we should always endeavour to ascertain its existence, both in order to oppose its further progress, and because this symptom, when once recognised, is of great assistance in explaining many concomitant disorders.

Case 3.—A man, 41 years of age and of good constitution, was crushed violently against the wall by the pole of a carriage, and brought to the Hotel Dieu; his respiration was observed to be extremely short and laborious; no appreciable lesion on the left side, but the sternum was fractured transversely at the union of the middle with the lower third, and the superior fragment was driven deeply into the anterior mediastinum. On the right side, four or five fingers' breadth from the sternum, and on the level of the fourth, fifth, and sixth ribs, there existed a considerable depression, at the bottom of which we could feel a crepitation, indicating fracture of the bones, and probably their cartilages; indeed, the prominence of the external fragments was easily felt by the finger; below this point was a spot of ecchymosis as large as a crown-piece. The patient's countenance expressed the deepest anxiety, his words were short and interrupted, the pulse small, almost imperceptible; the skin cold. When the fingers were passed over the fragments, we felt a crepitation analogous to that produced by air traversing the cells of the cellular tissue; but what is very remarkable, at each inspiration the tumour increased considerably, and extended from the lower part of the sternum to the seat of the fracture; during expiration it became diminished; near the level of the depression caused by the fractured ribs, the skin was elevated and depressed in a similar manner, but forming a tumour much more considerable. The emphysematous crepitation was determined by the slightest pressure, which was also sufficient to dissipate the tumours. The patient was bled, compresses, dipped in cold water, were placed over the fractured spot, and a bandage moderately tight applied. The patient at first experienced some relief from the pressure, but on the fourth day the oppression was suddenly renewed, the face became flushed, and the pulse quick and hard; he was bled again; the patient passed thus ten days between intervals of suffocation and of improvement; the tumours already noticed had disappeared, and there remained no trace of emphysema, when a large dark-coloured ecchymosis extended from the base of the chest down to the thigh, the breathing became more embarrassed, and the patient died on the twelfth day. After death we found the old adhesions between the two pleuræ; the superior fragment of the sternum driven into the pericardium, and the right ventricle of the heart lacerated by it for two-thirds of its thickness; the right pleura contained a great quantity of bloody serum and dark

blood; the fourth, fifth, and sixth ribs, were fractured, and their cartilages detached from the sternum.

On Traumatic Emphysema of the Eyelids.

The introduction of air into the subcutaneous or intermuscular cellular tissue is not confined, as a complication, to penetrating wounds of the chest; it may take place in any of the regions situated near the respiratory apparatus. Emphysema of the eyelids is not a rare disease; it has been noticed by several authors, and we have observed several examples at the Hôtel Dieu.

Case 1.—*Emphysema of the Eyelids, resulting, as was presumed, from a Fracture of the Os Planum of the Ethmoid Bone.*

A common labourer, twenty-five years of age, was struck by a mass of earth on the right anterior part of the head, neck, and chest; he felt at first no other bad effects than a slight pain at the root of the nose, to which he paid no attention, and continued his work. In a quarter of an hour afterwards, while blowing his nose, the eyelids on the left side became suddenly fixed to such a degree as to close the eye completely. What is the cause, Gentlemen, of this tumefaction? Is it an erysipelas? The skin is, in fact, bright and tense as in that affection, but the ardent heat and redness which characterize erysipelas are wanting; the eyelids preserve their natural colour and temperature. Is it an œdema? In the first place we should remark that an œdema does not form so rapidly, and the pasty feel of the tissues peculiar to serous infiltration is here absent. Did the man receive some contusion, giving rise to an effusion of blood? Were this the case, the effusion would soon manifest itself by the presence of numerous dark-coloured ecchymoses on the eyelids. From these negative signs we were induced to believe the tumefaction produced by an infiltration of air, and when we had examined the parts with some care, we recognised the emphysematous crepitation through the whole extent of the tumour. It is unnecessary to demonstrate to you, Gentlemen, that this crepitation is the characteristic sign of the presence of air in the cellular tissue of the tumefied parts; whenever, in analogous cases, the skin has been divided with a bistoury, air has escaped; and when the patient has died, either through the severity of the emphysema, or in consequence of the co-existing organic lesions, the presence of this fluid has been shown wherever the crepitation existed during life. In the present case we have no doubt as to the nature of the swelling; it remains to explain how it was formed. We are inclined to think that the mass of earth must have fractured the os planum, and that the air has passed through this opening from the nasal fossæ to the eyelids. You may remark that the emphysema was not immediately developed, but that some time intervened after the accident, and that the swelling was produced after the patient had blown his nose; the cause of this peculiarity may be thus explained: The fracture of the os planum may have existed in the first instance without any laceration of the soft parts lining it, which were sufficient to prevent the air from escaping; but in the effort at blowing the nose, a column of air may have been directed strongly on those soft parts, lacerated them, and thus established a communication between the eyelids and the nasal fossæ. The treatment consisted in a general bleeding, and the application of compresses to the bone of the orbit. On the third day the crepitation had diminished considerably, on the fourth it was nearly imperceptible, and on the fifth the eyelids had recovered their natural state.

Case 2.—A young man received a violent blow upon the nose by the fall of a plank; some hours afterwards, while clearing his nose with exertion, he felt something mount up from the sides of the nose to the angle of the eyelid on the left side, and expand itself there; it became at once so tumefied as to close the eye; the patient was received into the Hôtel Dieu, where the emphysematous crepitation was recognised; the ordinary means were sufficient for the patient's cure in four or five days. In this case I imagine that the pituitary membrane was lacerated by the blow, near the union of the nasal cartilage, with its bone.—It were easy to multiply examples of traumatic emphysema resulting from a penetrating wound of the chest, but I hope the cases already pointed out to you, and the observations with which they have been accompanied, are sufficient to give you an exact idea of this disease, its diagnosis, and treatment.

SCARLATINA.

To the Editor of THE LANCET.

SIR,—Having within the last few months been a good deal engaged with scarlet fever,—in the progress of some fatal cases of which I was more than usually interested, from circumstances which I need not enumerate,—I have been led to reflect on the subject, with a view of ascertaining

whether any of the mortality I have witnessed could have been lessened by more vigorous or judicious treatment, founded on a more accurate knowledge of the true pathological conditions on which the disease depends. Such reflections as these often obtrude themselves upon the mind when a case has terminated badly; and I do not envy the feelings of any one who can let events of this kind pass as ordinary occurrences, without asking himself whether he has over or under acted his part. Sydenham, who, it is true, describes only the milder form of the disease, discourages the "nimia diligentia medici," and the late accomplished Dr. Gregory used to say, "in aiming a blow at this disease, take care you do not knock down the patient." Perhaps these cautions are never more applicable to the treatment of disease, than where, like scarlatina, it has a specific character, and a definite course to pursue, and which do not allow of being cut up, root and branch, by a *coup de main*.

It is generally believed that scarlatina and some other epidemic diseases vary in their intensity in different seasons, owing to certain occult states of the atmosphere—malaria, or other modifying circumstances which are beyond our cognizance in the present state of endiometrical or meteorological knowledge. So frequently has this been observed, even by the lower orders, that measles and other eruptive diseases are said to be occasionally of a "bad sort." In the village of Steeple Claydon, about five miles from this place, this unmanageable form of the disease has prevailed during the last few months. In one room I saw five children lying, who had all died, on the five preceding days, of the malignant, or what Dr. Armstrong would have called the congestive, form of the disease. They were all the children of one man, and had had, I understood, some medical attendance; but the disease ran its course in periods varying from twenty-four to about sixty hours. In the same village upwards of twenty more have died since, by far the greater portion of them young persons, and of scarlatina.

The exact nature of the poison will probably for ever elude our scrutiny, but a question arises, does it vary in intensity, or is the occasional great fatality owing to some predisposing circumstances in the persons who become the victims of it? From some cases which have come under my observation, I am much inclined to believe that the latter is very often the case. If it be not so, how are we to account for its so generally attacking violently the feeblest or least healthy person in a family—who, not expecting its invasion, had taken no precaution to avoid it,—and passing lightly, or altogether, over other individuals in the same house, according to the medical or dietetic preparation which may have been instituted to moderate its severity? The advantage of such preparatory discipline has long been acknowledged in mitigating even inoculated small-pox, and the principle is, I think, fairly extensible to other of the exanthemata. Whenever the disease occurs in one member of a family, and the others cannot be removed from the sphere of contagion, I submit that they should immediately be put under medical and dietetic treatment, in anticipation of the disease. I do not propose that in the case of children, they should either be purged or starved to death, for the disease will sometimes, in its progress, do both fast enough; but that the gastric functions should have a few *half-holidays*, and that the excretions should be corrected if they appear unnatural or deficient. I dwell on this point because I have recently lost the valuable mother of a family, who, under the fatal delusion that she had already passed through the disease, most assiduously nursed her little girl, and neglected herself during what has been, not inaptly, termed the *latent* period of the disease; a time, however, indefinite (but varying, probably, from three days to six), during which, I believe, much may be done towards lessening the severity of the disease.

"Venienti occurrite morbo" is not less applicable to scarlatina in its more acute or malignant grades than to hydrophobia; and it is this maxim which I wish to press on the attention of my professional brethren, for there is scarcely any disease, cholera excepted, which runs on more rapidly or destructively in its worst forms. It may be almost called the English plague. The violent burst upon the stomach and bowels, the great heat of surface, and extreme restlessness, the rapid and feeble pulse, the bad state of the throat, excluding sometimes both food and medicine, but above all, the early complication and development of cerebral affection, similar to what we see in erysipelas, all tend to render the disease a formidable antagonist both to the patient and the doctor, and to bid defiance to the best-directed remedial measures.

From the time of Sydenham, who says, "infantes præcipue infestat*," it has been remarked that children are especially obnoxious to the disease. May not their especial susceptibility to it be owing to their anatomical peculiarities of structure,

* Processus integri in morbis curandis.

their vascular skins, and turgid and active mucous membranes, and to the constant irritation to which these last surfaces are daily exposed, by the almost total disregard, both of parents and themselves, of the simplest dietetic precepts, particularly, as most of their other ailments are generated by offences committed in these quarters, both as regards quantity and quality of food? In some few sporadic cases of the disease which I have witnessed, it appeared to have been occasioned by a surfeit of the stomach. No one doubts the cause of another of the exanthemata (urticaria) to be some derangement of stomach depending on peculiar food, such as muscles or other shell-fish. If this be a true statement of the predisposing circumstances in children, as well as in adults, it furnishes additional reason for early attention and direction on the part of the medical man, to obviate as much as possible any aggravation of the subsequent symptoms, by timely restraint during the prevalence of the disorder.

As my observations relate rather to prevention than to cure, I do not enter particularly into the treatment, but I will venture to say that the pouring of saline materials every three or four hours over the inflamed throat, and into a stomach in a state bordering on gastritis, if not actually within the limits of that condition, must be very injurious practice; and I doubt if patients would not have a better chance of recovery if treated with leeches to the epigastrium, throat, and head, according to symptoms, with demulcents, and ol. ricini, *à la Broussais*, or were left very much to the free but judicious application within and without of the "febrifugum magnum,"—cold water. Whether bleeding is admissible in the malignant or severe form of the disease is a much-disputed question. Even Dr. Clutterbuck, whom no one will accuse of timid practice, says,—"The utility of blood-letting is an unsettled point; it appears to me to be in general unnecessary, while, if used, it cannot be expected to put a stop to the disease. Palliation is the great object of practice."

When symptoms threatening the approach of collapse occur, there is no better medicine than the subcarbonate of ammonia; if dissolved in new milk, which is the best vehicle for it, it may be got into the stomachs of children who would otherwise refuse it if given in water, and more effectual doses of it may be administered in this way than in any other with which I am acquainted. I conclude by reiterating my suggestion, that when the disease is prevalent, we should not overlook the slightest symptom of indisposition in persons who are exposed to the contagion, before the symptoms are developed in an overpowering manner: that we should examine the tongue; endeavour to correct depraved secretions; cleanse the surface with cold or tepid water, according to the season of the year; prohibit all irritating or indigestible food; regulate the bowels by mild aperients; and thus prepare the patient for what, otherwise, will often prove an overwhelming attack.

I am, Sir, yours,

WILLIAM STOWE.

Buckingham, April 10, 1834.

VASCULAR NÆVUS.

To the Editor of THE LANCET.

SIR,—Will you be so good as to give the following short account of a case of vascular nævus, treated in the most simple way, and with perfect success, a place in your valuable periodical? It appears to me to be a less painful plan than the one suggested by Dr. M. Hall in THE LANCET of the 5th instant. I remain, Sir,

Your obedient servant,

CHARLES HICKMA

Kentish Town, April 15, 1834.

Case.—G. M., a child about two years old, was brought to me with a vascular nævus situated on the cheek, about half an inch below, and to the outer angle of, the eye; it was rather bigger than a sixpence.

I directed the mother, who was a dressmaker, carefully to rub in every night, a liniment composed of one dram of the *tartarised antimony* to one ounce of *olive oil*, and when pustules appeared, to poultice the part until it healed. She continued this plan (alternately applying the liniment and the poultice) for the space of three or four months, at the end of which time nothing but a *white scar*, or cicatrix, was to be seen, which, in reality, did not at all disfigure the child. The mother thought that previous to her application to me, the nævus was getting larger. Of course this plan would not do for a nævus situated on the eyelid or tongue.

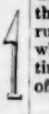
THE JACKSONIAN PRIZE for 1833, has been awarded by the Council of the Royal College of Surgeons in London, to JOHN GREEN CROSSE, Esq., of Norwich, for the best Essay "On the Formation, Constituents, and Extraction of Urinary Calculi."

PASSAGE OF A HAY KNIFE INTO THE ABDOMEN,

THROUGH THE LACERATED VAGINA;

Extraction nine hours after.—Local and General Bleeding.—Cure on the Seventh Day.—Spontaneous Re-union.

Therese Mattieu is a girl well-made, enjoying, ordinarily, good health, 22 years of age. On the 13th of August, at four o'clock a.m., she had occasion to pass into a granary and mount on a hay-cock from eight to ten feet high,—a hay-knife, such as is commonly used for dividing hay (of this form), was sunk into the hay-cock by one extremity, as far as the angle of the blade. The broken handle, which was a little more than three feet in length, passed obliquely downwards within a foot of the ground.



Matters were thus situated when the girl attempted to descend from the hay-cock by gliding, on her buttocks, along the inclined plane presented by its lateral surface. Unfortunately she happened to be exactly opposite the part of the cock where the knife was implanted. As she descended, the summit of the blade presented itself to the entrance of the vulva, and was finally carried up, as the girl continued to glide, into the vagina. She was instantly seized with a sensation of horror, which led her to catch hold of the hay on either side, in order to arrest the descent; but this soon gave way, the fall became more rapid, and the instrument was carried along with the body, until at length the handle struck against the ground, and the blade was driven through the vagina into the cavity of the abdomen.

The girl fell upon the ground on her right side. In this position, after having called aloud for assistance, she made several attempts to disengage the instrument, without success. Aid arriving, these efforts were repeated more violently by some of her relations, and a midwife who happened to come in: but the only effect produced was to enlarge the already existing wound. A surgeon now endeavoured to extract the blade, but also without success. Things were in this condition when Mons. S. was called upon, an hour and a half after the occurrence of the accident. The patient he found lying on her back, with a long piece of wood projecting between the thighs. When the hand was applied over the hypogastrium, a hard isolated body could be felt, situated near the edge of the pubis, a little to the left; the fingers could with great difficulty be introduced into the vagina, on account of the magnitude of the foreign body by which it was already occupied. The fear of increasing the laceration by the introduction of any other body, and the impossibility of transporting the patient to her bed in the present condition, made the reporter of the case anxious to break off the wood as close as possible to the vulva, and he was about this when the arrival of a priest to administer the last religious succour compelled him to desist. The handle of the knife was then reduced to a state of carbon by the action of a hot iron. The patient was transported to bed with considerable difficulty, and M. S. was about to complete the extraction of the instrument, when he was again interrupted by a physician in attendance, who desired to have the advice of a distinguished surgeon residing twelve miles off.

Under these circumstances it was necessary to wait, and a warm-bath was ordered, in which the patient remained an hour, tolerably tranquil, but at the expiration of this time the countenance began to contract, the eyes got sunken, the lips livid, and the pulse became weak and small. The surgeon arrived at half-past 12 o'clock mid-day, seven hours and a half after the occurrence of the accident. He made several attempts to extract the instrument without success, and then resigned the treatment of the case to the reporter. The efforts which had been made had driven the blade still further into the abdomen. The index-finger being passed between the anterior commissure and the handle of the instrument, gave the sensation as if a wooden cylinder was prolonged indefinitely upwards. A similar examination was made by introducing the finger between the perineum and the cylinder as far as possible into the vagina, but it was soon stopped by the arch of the blade. Being perfectly acquainted with the form of the instrument, M. S. supposed that by advancing the finger as far as the pointed angle of the blade, he could obtain some idea of its position; this was accordingly done, and the examination by the finger showed that the point of the angle was lodged on the anterior face of the sacrum, between the vagina and rectum, towards the left side; but it was impossible to ascertain the position of the tip of the blade; the only knowledge to be gained on this point was from the sensation of a hard body felt through the abdominal parietes to the left of the pubis. There was no flow of blood from the vagina, and the finger was only slightly tinged when withdrawn after the examination. The abdomen was not swelled; there was no vomiting, and they concluded

from these negative symptoms that the intestines and bladder had escaped injury.

The first idea which struck the operator, was to elevate the whole instrument so as to disengage its angle and introduce a gorget for the purpose of incising the soft parts to an extent necessary for its extraction; but his attempts were at first fruitless, and were very fatiguing both to himself and the patient. After having gently elevated the wood with the right hand, he endeavoured to enlarge the wound at the bottom of the vagina near the arch of the knife with the index finger; this was extremely difficult, and almost impracticable, from the elasticity of the tissues, and he resolved to seek for the point of the angle of the blade in the posterior wall of the vagina, and relieve it by an incision in that part, but in making a last attempt with the finger, he perceived that the angle was nearly disengaged by a slight rotatory movement. As it was already turned to the left side, it was necessary to make it describe the quarter of a circle from below upwards, to place it immediately behind the arch of the pubes and the bladder. The index finger was now carried into the superior angle of the wound, for the purpose of protecting the bladder from the point of the instrument, while the right hand managed the handle at will. At each rotatory movement thus made, the angle of the blade advanced toward the symphysis pubis, and was at length disengaged from beneath its arch, when the extraction was completed without further difficulty.

Fifteen leeches were immediately applied over the hypogastrium, and as a slight reaction seemed about to set in, the patient was placed in a warm-bath, where she remained for three quarters of an hour. The countenance was now no longer contracted, or indicative of the approach of peritonitis. The urine flowed freely when the catheter was introduced, and a lavement was thrown up and returned without change, leading us to conclude that the intestines were uninjured. It should be remarked that the patient had a stool a few hours before the accident.—Four o'clock p.m; the face was animated, the eyes humid, the skin warm and moist, the pulse frequent and full; bleeding to twelve ounces; emollient fomentations to the abdomen. The febrile symptoms were diminished by these means. The patient passed a tranquil night, with the exception that her sleep was interrupted by a disagreeable sensation in the urethra, and that she could not urinate without the introduction of the catheter.

2nd day. The fever was more violent; twelve leeches to the abdomen; in the evening a warm-bath was administered, after which the fever lost much of its intensity, and the urine flowed naturally. A lavement at eight a.m., a second at five o'clock p.m. The succeeding night was passed tranquilly; no local pain. The strict observance of the horizontal position distressed the patient very much, but all motion was forbidden, as they feared every moment to see the intestines descend through the wound.

3rd day. Bled to twelve ounces, although there was no local pain, and the general state was favourable. In the evening the abdomen was slightly tympanitic, and the epigastrium was very sensible to pressure; but the symptoms soon disappeared after the discharge of a quantity of gas; this night was less tranquil than the preceding.

4th day. Pulse frequent and quick without being full; temperature of skin elevated; abdomen supple, and tongue natural: a warm-bath at 4 p.m.; half an hour afterwards the skin was of the natural temperature, and the pulse had fallen to the ordinary standard. At 8 p.m. an injection was thrown up and returned odorous and changed in colour, the first symptoms of the presence of feces in the intestine.

5th day. The state of the patient was very favourable; but at noon she was seized with an access of intense fever without any local symptoms, which continued all day and a portion of the night; an injection was now thrown up into the vagina, and returned limpid; the small quantity of pus which has been discharged since the accident was furnished by the fissure of the perineum.

6th day. A slight elevation of the pulse took place toward 10 o'clock, although the abdomen and vagina remained without pain; there was also a little tumefaction in the left iliac region, but no pain upon pressure.

7th day. Patient felt herself remarkably well. No examination of the vagina has as yet been made, for fear of interrupting the process of cicatrization; the wound in the perineum is completely healed, and there is no trace of pus from the vulva.

8th day. The patient was in a state of convalescence, and gradually recovered her appetite, &c.; but rest was enjoined for some days longer, in order that the cicatrix might become perfectly consolidated.—*Revue Médicale.*

AUTOPSY OF A FEMALE WHO COMMITTED

SUICIDE IMMEDIATELY POST COITUM.

In May, 1827, Mr. H. Bond, of Philadelphia, was invited by Dr. S. Tucker to examine the body of a female who had destroyed herself by taking a large quantity of laudanum. She was a girl between eighteen and twenty years of age, well formed, and had enjoyed excellent health previously. She had passed the whole or greater part of the night in the arms of a young man, and before break of day destroyed herself by swallowing a strong dose of laudanum. Dr. Tucker was called upon immediately to see the patient, but his efforts were unable to save her life. The body was opened next day in presence of Dr. Tucker and M. Meigs.

The stomach healthy, but gave out a very strong odour of laudanum. Mr. Bond removed the whole of the genito-urinary apparatus, and took them home with him for a more minute examination. The uterus was considerably enlarged, and empty; its colour indicated an increased degree of vascularity. The ovaries were also large and vascular, and lay much closer to the uterus than was natural. Instead of floating free, as is usually the case, one or two inches from the uterus, they were drawn close to the body of that organ, approaching it within a quarter of an inch. The fallopian tubes were more vascular, and firm, and fleshy, than we see them in the virgin uterus; they were much curved, and seemed united to the ovaries; these latter bodies presented on their surface some small vesicles projecting slightly, and containing a troubled fluid. Several small vesicles of a different kind hung from the surface of the ovaries and fallopian tubes, by small fine pedicles, a quarter of an inch in length; these resembled so many drops of mucus of a pyriform shape, and were a little larger than raisin-stones; they were covered by an extremely thin pellicle. The internal surface of the uterus was lined with a matter having the appearance of semen, and giving out strongly the peculiar odour of that fluid, and the neck of the organ was filled with the same matter. One of the fallopian tubes (the only one examined) seemed to contain a similar fluid, but the seminal odour was not here well marked. When this matter was removed from the surface of the uterus, the lining membrane appeared extremely vascular, like the conjunctiva in cases of acute ophthalmia, or as if it had been injected with vermillion.

VACCINATION IN FRANCE

DURING THE YEAR 1832.

(Extracted from a Report made by the Royal Academy of Medicine to the French Government.)

We lately alluded to this report, which contains some particulars on certain points connected with the history of vaccination that are worthy of attention. We shall pass over the statistical details in which the number of vaccinations practised in each department of France since the year 1828 are enumerated, with other circumstances of a nature purely local, and turn to a subject which is now debated in France with much difference of opinion between the most celebrated physicians of the capital, viz. the question of revaccination, and the existence of secondary variola. Let us first, however, notice some observations contained in the report on varieties in the development of the pustule.

M. Barrey, who vaccinated 1061 individuals in one of the departments, remarked that a great number of his cases failed during the heat of summer, but in the month of October the modifying influence of the season was suspended, and every touch of the lancet produced a perfect pustule.

Another practitioner, M. Damain, observed a great number of anomalies, which he was inclined to attribute equally to atmospheric variations, at that time very prevalent. The most remarkable anomaly was a retardation in the appearance of the little pustule, which was scarcely ever formed before the sixth day, and this phenomenon occurred constantly during the whole course of the year; besides this retardation, the circumference of the diseased point was of less extent than usual, the areola smaller; a great number of vaccinations failed; the subjects in whom the operation succeeded, were frequently attacked by boils, enlargement of the cervical glands, &c.

M. Parer likewise observed this slow appearance of the vaccine pustule during the year 1832. In many individuals the wound did not commence to inflame before the tenth or even the fifteenth day, and the constitution seemed to resist the introduction of the morbid matter with greater force than usual, as it was necessary to vaccinate the same individual

sometimes two or three times before the matter would take. In other departments, on the contrary, the march of the disease was very acute, and the pustules were fully formed before the seventh day, presenting a well-marked central depression, with a large rosy areola.

The question of revaccination, as we have before noticed, is one very much debated at the present moment; it is, therefore, with great interest we have read that part of the report which considers the subject of revaccination, secondary variola, and varioloids.

M. Tueffard, a physician residing at Montbeliard, has made extensive experiments on this subject,—the number of individuals revaccinated by him, amounting to no less than 236. These are divided by M. Tueffard into four classes, viz. 1st. Those who were revaccinated in less than a year after the first vaccination: 2nd. Those in whom the period of revaccination varied from one to seven years after the original operation; 3rd. Those revaccinated from seven to fifteen years after; 4th. Those in whom the interval exceeded fifteen years. The results obtained by these experiments were as follows:—The first class comprised 108 individuals, and of these *only five* presented examples of an incomplete secondary cow-pock. The second class embraced twenty; of these, seven were affected with incomplete secondary vaccine. The third class embraces fifty-three individuals, the greater number under fifteen years of age; twenty-five of these exhibited the disease in its imperfect form; twelve had a complete secondary pock, and the sixteen others presented some pustules of a doubtful character. The fourth class was comprised of fifty-five individuals; these presented sixteen cases of complete secondary vaccine, twenty of incomplete, and nineteen cases where the pustules were false, or doubtful. A comparative examination of the above numbers shows beyond doubt that the chances of recommunicating the cow-pock increase considerably with the period of time which elapses between the first and second operations, and leads to the conclusion, that the preservative influence of vaccine is diminished by time; thus, when revaccination was performed before twelve months had elapsed, not a single individual of 108 was affected with the secondary disease in its perfect form, while amongst 59 cases of revaccination after an interval of fifteen years, we have sixteen examples of perfect cow-pock, and twenty-five where the disease was more or less incomplete; that is, five-sevenths of the whole number were more or less affected.

We are not to imagine that complete secondary vaccine is a mere local disorder confined to the point where the lancet has been introduced, for M. Tueffard has inoculated several individuals with matter taken from the pustules of this secondary complaint, which has given rise to other pustules perfectly similar to those of real cow-pox. The progress of this secondary vaccine is very variable. Sometimes on the third or fourth day, small round pimples, surrounded by a deep areola, make their appearance, and gradually dry off on the fifth or sixth. In another form of this secondary vaccine, the disease commences on the second day; between the fourth and seventh the pimples are changed into circular vesicles, depressed in the centre and less prominent than those of a primary cow-pock; about the eighth day they are surrounded with a small red areola, and are then covered with thin crusts, which fall off on the twelfth or fifteenth day.

Dr. Laquarhe has also vaccinated seventeen individuals, of whom twelve were affected with a disease presenting all the characters of a primary cow-pock, and during the prevalence of variola in his department he collected numerous facts, tending to prove that individuals who had been vaccinated and subsequently attacked with modified small-pox, communicated to different persons of the family, who had not been vaccinated, small-pox in its primary form; he also remarked that the precursory symptoms of varioloid were often more alarming than those which preceded the development of small-pox itself.

The fact of the supervention of small-pox in subjects who have already been affected with the disease, or who have been vaccinated, is therefore beyond doubt established, but it is not so easy to account for these secondary attacks of variola. Some physicians would explain the fact by supposing an alteration to have taken place in the vaccine virus; but this theory leaves many circumstances unaccounted for. How, for example, does it show why this phenomenon has never been observed during a space of twenty or thirty years in certain localities, while in others the occurrence of secondary small-pox has, within a short time, been noticed to occur as well in those recently vaccinated as in those who were vaccinated for a long period; if, on the contrary, we are to regard the preservative power of vaccine as temporary, lasting only for a short interval, how comes it that this discovery was not made long ago, or that the quality is not now altogether lost and worn out?

It must be confessed that the greater part of the hypotheses on this subject are unsatisfactory, as M. Pellieux endeavours to explain the anomaly in the following ingenious manner. He concludes from the circumstance of secondary small-pox having successively occurred in most countries, in America, France, England, Ireland, Italy, &c., that the variolous epidemic which now prevails in a great part of Europe, differs from the preceding ones, which never attacked vaccinated individuals, and that it is probable when this epidemic has passed away, that we shall cease to see the occurrence of small-pox in individuals already vaccinated. He therefore approves of revaccination, but only so long as the reigning epidemic shows a tendency to attack the vaccinated.

M. Ollet had occasion to observe a curious example of an epidemic varioloid during the months of May, June, and July. The disease had been altogether unknown in the quarter, when it suddenly broke out; the symptoms did not differ, whether the subjects had been vaccinated or not; and the epidemic preserved its original type for three months of its prevalence, without being complicated, or giving rise to a single case of small-pox. It ceased suddenly in the month of August, just as the heat of summer was most excessive. M. Ollet made the following experiments in the presence of several medical men.

He inoculated three children with the matter of the varioloid pustule; one child had been vaccinated, the other not; and the third had been affected with confluent small-pox in 1829; they all presented examples of perfect pustules on the arm where the pricks were made, and the disease passed through its several stages as in individuals affected by the epidemic itself.

At the termination of the report we find the following conclusions, which have been adopted by the Royal Academy, and which we believe will receive the assent of all impartial observers in England:—

1st. Wherever the propagation of cow-pock has been encouraged, small-pox has either been rarely observed, or easily got under when it made its appearance.

2nd. Vaccination is the sole and infallible means of opposing the ravages of epidemic small-pox.

3rd. All the vaccinators of the department are agreed in saying that the vaccine matter has suffered no change or deterioration in consequence of its successive transmissions.

4th. Several physicians have reported the occurrence of small-pox in individuals already vaccinated, or who have had the disease before; but in these *rare* cases the disease was always mild, and not a single fatal termination is to be remarked.

5th. Numerous revaccinations have been made. In most cases the operation has only confirmed the efficacy of the original vaccination. In the rest the utility of this precaution has not been sufficiently demonstrated to require a special recommendation on the part of the Academy.—*French Gaz.*

THE PULSE.

We extract from the *French Gazette*, a journal to which we are often indebted for continental medical news, the following interesting particulars concerning the relation of the frequency of the pulse in relation to the age of the individual:—

Note on the Frequency of the Pulse in relation to Age; communicated by M. Leuret.—I have just received from M. Hamont, founder of the School of Veterinary Medicine at Abouzabel, a letter, from which the following passage is extracted, referring to the frequency of the human pulse. I was much surprised, says M. Hamont, to read in a work, published by you and M. Mitivié, that the frequency of the pulse increases with the age of the individual. This assertion seeming contradictory of all our established ideas, although supported by a great number of facts, I thought it necessary to repeat some experiments myself before I could give my assent to it. For this purpose, I assembled the pupils and servants of the veterinary school, and examined the state of the pulse in each, before the professors of the school of medicine. It was eleven o'clock of the forenoon, and the thermometer of Reaumur stood at 17°. We obtained from this examination the following results:—

10 years of age ..	60	pulsations.
10½	76	ditto.
12	63	ditto.
12	79	ditto.
12	86	ditto.
20	68	ditto.
22	72	ditto.

Total 504

Average of pulse up to 22 years is 72.

26	85	pulsations.
30	92	ditto.
35	73	ditto.

35 .....100 ditto.
42 .....100 ditto.
55 ..... 85 ditto.
50 ..... 95 ditto.

Total 630

Average of pulse from 26 to 50 years is 90.

All the individuals whose pulse was examined were in a state of perfect health.

THE NEW ALKALOIDS.

THE numbers of the *Journal de Pharmacie* for February and March, contain some interesting particulars on several of the new alkaloids.

SARSAPARILLINE.

This substance (says M. Thubeuf) is regarded as the active principle of sarsaparilla. Like the original root, it communicates to water the property of frothing when agitated, and gives it that sharp bitter taste which we find in the aqueous or alcoholic infusions of sarsaparilla. When examined by the microscope, it presents radiated crystals, the layers of which converge toward their extremities, and it has no action whatever upon turnsole paper. Sarsaparilline, when pure, is white, without odour, and, if it contain no water, is tasteless. It is little soluble in cold water, but the whole is taken up by boiling water, which throws it down again as it grows cold. It is soluble in alcohol, either cold or warm, and the substance may be crystallized in this manner by evaporation. It may be precipitated from its alcoholic solutions, by the addition of a little cold water. This alkaloid is insoluble in ether, even at the boiling point, but is very easily dissolved in a warm mixture of alcohol and ether in equal quantities.

ATROPHINE.

This substance (say MM. Geiger and Hesse), already noticed by Brande, has been obtained from the atropa belladonna. It has presented identical properties when obtained from the same part of the plant by different processes. It is white, and crystallizable, into bright, transparent prisms, which have a tendency to group together; at the ordinary temperature, water takes up only a hundredth part of the mass. The aqueous solution of atrophine renders turnsole paper blue, when reddened by an acid. It acts on the organ of vision in the same way as belladonna, and even a very weak solution is sufficient to dilate the pupil, which remains in that state for a considerable time. Chlorine has very little action upon it, and it seems to form sub-saline compounds with the acids. The aqueous infusion of atrophine forms an abundant white precipitate with the aqueous infusion of galls, and it forms an orange-yellow precipitate with the hydrochlorate of gold.

HYOSCIAMINE.

This alkaloid is most easily obtained from the seeds of the hyosciamus niger. It crystallizes into transparent colourless needles. Its taste is acrid and disagreeable, like that of tobacco, and it has a powerfully poisonous action. The smallest quantity, placed on the eye, produces permanent dilatation of the pupil; in an anhydrous state it is not alkaline, but becomes so by the addition of a small quantity of water. The salts of hyosciamine are neuter, they are partially crystallizable, and are as poisonous as the plant itself.

DATURINE.

This alkaloid has been extracted by the same chemist from the datura stramonium. It readily crystallizes into regular prisms, which are colourless and brilliant. It is inodorous. The taste is at first slightly bitter, and then becomes very acrid, like that of tobacco. Daturine is a highly-poisonous substance; one-eighth of a grain was enough to poison a sparrow in three hours. When placed on the eye, it occasions a strong and permanent dilatation of the pupil.

SOLANINE.

This substance, already discovered by several French chemists in the solanum nigrum, solanum dulcamara, and the solanum mammosum, has been recently found in the potato by M. Otto of Brunswick. He obtained the alkaloid in the following manner:—The potato buds were first treated in water, acidified by sulphuric acid; he then separated the sulphuric and phosphoric acids, with the extractive matter, by acetate of lead; the colourless liquor which remained was saturated with lime water, and the precipitate boiled in alcohol; and the product thus obtained was purified by frequent washing in alcohol. In order to determine its action on the animal economy, M. Otto tried the effects of this substance upon rabbits, and found that it should be ranged amongst the acrid narcotic poisons. One grain of solanine was sufficient to kill a rabbit in six hours; a second rabbit, which was much stronger than the former, was destroyed in nine

hours after having taken three grains. It exercises a remarkable paralyzing effect on the hinder extremities of the animal before occasioning death, and this paralysis may be produced in horned cattle, by simply feeding them on the washings of potato-tops. This substance is white and powdery, and turns blue turnsole paper which has been reddened by the action of an acid. The greater part of its salts assumes an aspect like gum upon desiccation.

COLCHICINE.

This alkaloid crystallizes into delicate needles; its flavour is very bitter; when placed in the nares it does not excite sneezing, while the smallest portion of veratrine occasions a violent fit. Colchicine is a strong poison; one-tenth of a grain dissolved in alcohol was given to a cat six weeks old; the animal began at once to foam at the mouth; after the lapse of an hour she passed abundant alvine evacuations, and vomited; she soon became feeble, unable to walk steady, fell down on the ground, rolled about, and was agitated by convulsive motions; these symptoms increased in severity; the animal died in twelve hours. On examining the body after death, the intestinal canal was found to be violently inflamed, and blood was effused into its tissue through the whole extent; one-twentieth of a grain of veratrine was given to a younger cat, in order to judge of its effects by comparison; they were very energetic; the animal quickly became feeble, was seized with convulsions, fell on the ground, and died within ten minutes. After death nothing remarkable was discovered, except inflammation at the upper part of the œsophagus. This portion of the canal was not inflamed in the cat poisoned by colchicine.

ACONITINE.

M. Geiger has found this alkaloid in the leaves of the aconitum napellus; it does not seem susceptible of crystallization. When perfectly pure, it is white, grained, and forms a colourless, transparent mass. Its taste is bitter, then acrid, but the acridity is not strong or permanent. In this respect it differs from the plant, whose taste often remains twelve hours, leaving the tongue quite benumbed. The acrid principle is united with the aconitine, from which it may be separated by repeatedly combining the alkaloid with acids. When this substance is completely deprived of the acrid principle, it is excessively poisonous; the one-fiftieth part of a grain, dissolved in alcohol, was sufficient to kill a sparrow in a few minutes, and one-tenth of a grain destroys a small bird with the rapidity of lightning. When placed on the eye it produced dilatation of the pupil, but the effect is of short duration.—*French Gaz.*

EXPERIMENTS ON THE THERAPEUTIC PROPERTIES OF CODEINE.

This new alkaline substance has been recently obtained from opium by M. Robiquet, and its therapeutic effects have been studied at Amiens by M. Barbier, surgeon to the *Hôtel Dieu* of Amiens, who communicated some observations on them to a late sitting of the *Royal Academy of Medicine*. These efforts seem to establish the chemical specialty of codeine, differing as they evidently do from either opium or morphine. The codeine was administered in the dose of one or two grains. Like opium and all medicinal substances derived from that drug, codeine operates on the nervous system, but its medical influence seems very small on the brain; it makes no impression whatever on the spinal marrow or nerves derived from it, and its whole activity seems to be exhausted on the nervous plexus of the great sympathetic. Thus in cases of gastralgia, characterized by pain in the epigastric region, and a sensation of burning about that part, with paleness of the countenance, anxiety, &c., codeine has quickly dissipated all the accidents which it is impossible not to refer to the nervous plexus of the great sympathetic. M. Barbier has also seen codeine produce considerable alleviation in cases where the tunics of the stomach were beyond all doubt degenerated. Codeine also produces sleep, when given in sufficient quantity, but this sleep differs from that occasioned by opium; it is never accompanied by a sensation of weight in the head, dizziness, &c., nor does its administration ever give rise to cerebral congestion. M. Barbier has been convinced by the observation of several facts that codeine has no influence over the spinal marrow or its nerves. Many patients affected with the gastralgic pains already alluded to, had also neuralgic pains in the head, loins, thighs, &c.; the uneasiness about the abdomen was quickly relieved by the remedy, but the pains in the limbs, back, &c., remained unchanged. This occurred upon so many occasions as to leave no doubt on the subject. It is necessary to remark, that all the patients on whom the codeine was tried, had pre-

viously employed, without any benefit, the liquid laudanum of Sydenham. Codeine does not produce any apparent change in the exercise of the circulation or respiration, nor does it disturb the digestive organs or produce constipation. When applied to the skin, it has not given rise to any remarkable phenomenon. In one case, two grains were applied to the surface of a recent blister, but the neuralgic pains for which the blister had been employed were not in the least alleviated.—*French Gaz.*

LICENTIATES OF THE HALL.

To the Editor of THE LANCET.

SIR,—I cannot allow the sweeping censure of your Bridgnorth correspondent (Mr. J. M. Coley) conveyed in THE LANCET of April 5th, against the whole body of apothecaries, to pass unnoticed.

Speaking of the act of 1815 he says,—"Of all the ignorant measures ever sanctioned by law, I have no hesitation in asserting that this Act has been found most injurious to the interests *of the poor*, by almost entirely depriving them of the benefits of *surgical skill*."

And again,—"Since the year 1815, an apprenticeship to a chemist and druggist, together with a certain degree of effrontery, have been found just as valuable a passport into the profession, as the legitimate distinction derived from clinical observation and the practice and precepts of tutors possessing medical and surgical experience."

Now, Sir, I would ask your correspondent,—Who are those *ignorant* apothecaries, void of surgical skill, with mere effrontery and a few years apprenticeship to back them, that, like Richard of Gloucester, have become such formidable usurpers of the rights of others? Why, they are men who have studied anatomy and physiology, and the practice of medicine, who have received, and continue to receive daily, *clinical* instruction, who, among the abodes of the poor, the *despised* poor, and in the chambers of the wealthy, are continually gaining and hoarding up stores of knowledge which are in vain sought after by the mere book-reading theorist the high and haughty Fellow within the walls of his mildewed college. They are men constantly employed in investigating the effects of remedies, who behold, from the commencement to its close, the various features of disease,—men from whose ranks have sprung some of the brightest ornaments of our profession; men who, to use the words of your correspondent himself, — "had the Royal College of Surgeons in London used their jurisdiction, would have been compelled to pursue the occupation of pharmacopolists and dispensers."

The tenor of some observations of your correspondent would lead one to suppose that he began to germinate into existence some one hundred and thirty years ago, since which period he had indulged in unconscious sleep, until, aroused from his lethargy by the thunders of medical reform, he suddenly started into action, supposing himself to be battering against

> "That amphibious fry,
> Bold to prescribe and busy to apply."

who, in the days of Garth, aroused alike the ire and the poetic muse of that learned man.

I know there are some in the profession who, satisfied with as little knowledge as can be obtained, or as is necessary to form a legal qualification to practise, are a disgrace to their brethren; but such are indeed very very few, and the dawn of an era is fast approaching under which it is to be hoped better prospects will appear. Let not, therefore, any new-fledged professional, or old pedant big with a title from a college, look too contemptuously on the *mere* apothecary. Among men of that denomination are those who have spent years upon years of study, who have thoroughly grounded themselves in anatomy, physiology, and surgery, who now practise medicine in its most extended signification, who, endowed with every *legal* qualification by the Act of 1815, have not found it necessary, and have not been so *unwise* as to present themselves before any college—a step, the only tendency of which would have been to relieve them of a portion of their money.

I have only, Sir, to add a remark or two, upon the advice of Mr. J. M. Coley to general practitioners (and by general practitioners I suppose Mr. C. means *only* those who are members of the College *in addition to licentiates of the Hall*)—"That they should relinquish the profit of stock, and pursue the nobler course of seeking to establish their claims to that reward which is virtually due to the exercise of mental labour and manual dexterity." True it is that every practitioner of medicine ought to be in a condition to support himself by mental labour and manual dexterity, without combining a *profit from stock*; but, Sir, have not our imperfect laws reduced the general practitioner to this alternative? Let the druggist be prevented prescribing over his coun-

ter or in the dwellings of the sick. Let our hospitals and dispensaries be freed from a host of patients well able to remunerate a private individual. Let the jobbing of large proprietors with the same institutions cease. Then, and not till then, will the young practitioner in medicine be able to contend with those numerous obstacles which, were he to immure himself in a private dwelling, would (I am speaking generally) verify the old adage, that "A physician seldom gets bread to eat, before he loses his teeth to bite it." Apologising, Sir, for the length of this communication, I beg to subscribe myself your obedient servant,

A GENERAL PRACTITIONER, BUT NO MEMBER OF THE COLLEGE OF SURGEONS.

April 7th, 1834.

PETITION OF CORONERS OF MONTGOMERYSHIRE.

To the Honourable the Commons of Great Britain and Ireland in Parliament assembled,

The humble Petition of EDWARD JOHNES, M.D., and HUGH LLOYD, Surgeon, Coroners for the County of Montgomery, Showeth,

That your petitioners have long held their present offices, and, being duly impressed with the responsibility of the duties thereof, have endeavoured to discharge them with diligence and fidelity.

That although the ancient laws of the realm deemed the office of coroner to be of so much consequence to the welfare and safety of the community, that only men of great consideration were appointed to it, and although at the present time the duties of coroners are so varied and important that much legal and scientific knowledge is requisite for the due discharge thereof, yet are the fees for holding inquests, and the allowance for travelling expenses, so inadequate to the labour and trouble incurred, and so trifling as compared with those received by other officers discharging public duties, that but little inducement is held out to men possessed of the requisite education and station in society to undertake the employment.

That your petitioners, Edward Johnes, M.D., and Hugh Lloyd, Surgeon, are resident in the county of Montgomeryshire, where they have practised in their respective branches of the medical profession for twenty-five years and upwards.

That it would have been impossible for them, consistently with their standing in their profession, to have held the office of coroner, had they not, in addition to the statutable dues, been allowed the fees usually received by medical men for opening dead bodies, and giving evidence thereon.

That in 1830, though the magistrates of the county passed a high eulogium on the manner in which your petitioners had discharged the duties of their office, they appointed a committee of their own body, which, after three years deliberation, determined that the coroners should cease to engage in such examinations, and that thenceforth no remuneration should be granted to any medical men so employed.

That this determination has not only deprived your petitioners of the small addition to their statutable dues, but as other medical men refuse to examine bodies without obtaining a guarantee from the coroners that they shall be allowed an adequate remuneration for their trouble, your petitioners (having no power to grant such guarantee) are frequently obliged to submit insufficient and unsatisfactory evidence to the consideration of juries.

Your petitioners therefore humbly pray your honourable House to take this case into your consideration, and trust you will deem it right to order such increase in their present fees as will enable them to support the respectability of their office, and to discharge the duties thereof with advantage to the public and without loss to themselves; and your petitioners as in duty bound will ever pray, &c.

REMUNERATION AT INQUESTS.

PETITION OF MEDICAL MEN OF THE COUNTY OF MONTGOMERY.

To the Honourable the Commons of Great Britain and Ireland in Parliament assembled,

The humble petition of the persons whose names are hereunto subscribed, being medical men practising in the county of Montgomery, Showeth,

That your petitioners are engaged in the practice of medicine and surgery, and that the support of themselves and families is almost solely derived from its profits.

That attendance upon coroners' inquests is frequently required from them, where, differently situated from other witnesses, they are not only called upon to give testimony to such facts as may have come within their cognizance, but to perform, for the public service, without

any remuneration by law assigned, the professional duty of opening and examining dead bodies,—which require great skill and knowledge, and are attended with considerable personal danger.

That they have heretofore cheerfully complied with the requisitions of the law on such occasions, satisfied with such moderate remuneration as the magistrates have allowed them. That allowance is now withheld, and the law not furnishing them with any means of enforcing it, they feel themselves bound, in justice to themselves and their families, most respectfully to submit their case to your Honourable House, in the full confidence that you will afford them such relief as in your wisdom shall seem proper; and your petitioners, as in duty bound, will ever pray, &c.

Signed by

Richard Baxter, Montgomery.
George Towns, R.N., ditto.
William Kyman, Newtown.
Evan Williams, ditto.
Richard Jervis, Llanidloes.
David Evans, ditto.
John Marpole, R.N., Newtown.
Hugh Lloyd, Machynlleth.
William Lloyd, ditto.
Hugh Lloyd, jun., ditto.
Evan Jones, ditto.
William Roberts, ditto.
Edward Jones, Welsh Pool.
Henry Jones, ditto.
P. L. Scaph, ditto.
G. P. Williams, ditto.
Maurice Lloyd Jones, ditto.
Thomas Bottrel, Kerry.
John Owen, Newtown.
Hugh Roberts, Llanfyllin.
Richard Davies, ditto.
Hugh Bibby, ditto.
Robert Davies, Llanfair.

THE LANCET.

London, Saturday, April 19, 1834.

A PAMPHLET has lately issued from the press, entitled, "Suggestions respecting "the intended Plan of Medical Reform, "respectfully offered to the Legislature "and the Profession." The author of this production is no less a person than "JOSEPH HENRY GREEN, F.R.S., F.G.S., "Professor of Anatomy *to* the Royal "Academy, Professor of Surgery *at* King's "College, and one of the Surgeons *of* St. "Thomas's Hospital,"—Professor and Surgeon to, at, and of, three institutions.

In the summer of 1831, Mr. GREEN, in one of his eccentric movements, favoured the profession with a small but entertaining production on the subject of medical reform; and again, in the autumn of 1832, another opportunity was enjoyed of observing Mr. GREEN while he was hallucinating amidst the "hyperbolically interwoven mysteries of cerulean space."*

That Mr. GREEN had some object in publishing his essays at those periods, we are ready to admit, but we cannot acknowledge that that object could be discovered, even after the most vigilant perusal of his productions. It is possible, and even probable, that in the first of them he was desirous of advocating the extension of the chartered privileges of the Council of the College of Surgeons; and that in the second he was equally solicitous of promoting the welfare of King's College, by pointing out the advantages of a collegiate education to medical students.

Considering that Mr. GREEN is a man of undoubted attainments and capability in his profession, his style of writing may be regarded as a literary phenomenon. He rejects, with apparent contempt, all the rules of the schools, and dwells, in language which displays adherence, in not a single instance, to the ordinances of grammatical construction, on the necessity of furnishing the mind of the student with a correct knowledge of grammar;—he expatiates on the advantages which are derivable from a knowledge of the science of mathematics, though from his mathesis it is plain, that he himself possesses not the least understanding of number or space,—and insists, with pertinacity, on the necessity of exacting from students

* Leader in LANCET, Vol. I. 1832-33, page 126.

in medicine, a thorough acquaintance with the rules of logic, although Mr. GREEN, in his own attempts to reason, shows, far too evidently, that *he* is content not only to indite pamphlets on medical reform, but to occupy some of the highest offices in the profession, without comprehending one of the elementary principles on which the "right use of reason" is founded.

Instead, however, of dwelling on imperfections of style, we prefer, on this occasion, placing before the reader the plan which Mr. GREEN would enforce, in order to establish an improved system of medical education, practice, and police. In another number we may advert to the manner of the author. At present we shall deal with his matter.

After having "endeavoured" to point out the paramount importance of an inquiry relative to the improvement of the profession, our author proceeds to treat of the divisions of his subject in the following order,—viz. "1. The *education*; 2. The "*regulation of the practical departments*; 3. *Their government*." Thus, at the very outset, our author furnishes evidence of the confused state of mind which he ever evinces while writing on subjects not strictly medical. What does he mean by the "regulation of the practical departments and *their* government?" Surely, the *regulation* of the profession is comprised in its *government*! If he had said "medical education, practice, and government," his expression might have conveyed a more accurate conception of his meaning.

Our author having promised some observations on each of these heads, proceeds, first, to notice the subject of medical education, and its most indispensable requisites. The reader will be pleased to recollect that we quote *literally*, and without the addition of a single letter, or any variation of type. Here, then, are the indispensable requisites of a medical education, described in Mr. GREEN's unique fashion:—

"1. The knowledge of *words*, their definite import and right use, as grounded in grammar, and evinced by a *correct style*.

"2. The knowledge of the elements of *mathematical science*, as the discipline of the pure sense.

"3. The knowledge of *experimental science*, as affording the requisite discipline of the senses.

"4. The knowledge of *logic*, as the laws of right reasoning, the forms of all legitimate conclusion, and the criterion of truth and falsehood.

"5. The knowledge properly *medical*, grounded on physics, physiology, and psychology.

"6. The cultivation of the *morals*, and the formation of habits of *gentlemanly feelings and conduct*."

Having thus presented us with an account of those subjects and sciences which the embryo student should be compelled to study and understand, Mr. GREEN, after indulging for some pages in his peculiar style of reasoning, proceeds to explain his organized system for carrying his academic plans into effect. He says, in short, that "a national institution "in London, for *the whole** education of "such a profession, is imperatively needed "and demanded." This national institution is to be an university "*peculiarly medical*." In fine, it is to be "the long-"felt desideratum of an *English National* "*Medical University*,"* — established, of course, under the sanction of a royal charter. Mr. GREEN then insists that "the London school (schools) of medi-"cine should be united, as the *Metropo-"litan University, under the control and "regulation of the governing council of the "medical profession* (or medical synod),* "with the power of conferring degrees."

This university is to consist, further, of a certain number of colleges, in each of which is to be established a school for elementary instruction, while a senior department it to be founded "for instruction

* Author's italics and parentheses.

"in those knowledges (*knowledges!* Ed. L.) "which are common to all the professions, "with a medical department for the stu- "dies properly *medical*," and the various collegiate departments are to be provided "with their due appointment of professors "and teachers."

At page 18, we are presented with Mr. GREEN's view of the two orders of honorary distinctions for the members of the Metropolitan University, each order comprehending two degrees. By the "first "order," observes our lucid author, "it is "intended to designate attainments in "*general education*, and in *universal* and "*natural science*." The second order of honorary distinction is designed for those members who may signalize themselves for attainments strictly medical or professional. Hence Mr. GREEN proposes to divide the members of his university into four grades:—

1. "Inceptor graduates in mathematical and physical science.
2. "Graduates in mathematical and physical science.
3. "Inceptor graduates in physiology.
4. "Graduates in physiology."

Grades 1, 2, and 3, are designed to mark a proficiency acquired in three stages of medical education; but the last, that of the degree of graduate in physiology, is designed to be the "guarantee of a fully completed medical education." The *studies* Mr. GREEN proposes should be pursued in the following order. We quote verbatim from the pamphlet:—

"1. The *initiatory* and *elementary education* of *the schools*; the Greek and Latin languages, the elements of mathematics, &c., with *drawing*, and with an introduction to the study of nature, as far as the facts may be presented to the senses.

"2. That the student *at the age of sixteen*, after undergoing an examination in proof of his competency, should *matriculate*, and pursue his studies in the *senior department* of one of the colleges during *two years*. But we are of opinion that there would be a great advantage in making the two years of this period *transitional*, so that the youth intended for the medical profession might attend the courses of lectures on chemistry, botany, materia medica, natural history, experimental philosophy, and receive instruction in *pharmacy*. And we are persuaded that in that time a youth of average talent might acquire all the profitable knowledges and manipulations for which hitherto a five years apprenticeship has been demanded.

"3. That at *eighteen years of age* the student's proper medical studies should commence, having shown previously to his admission into the medical school, in an *examination* instituted for that purpose, his proficiency in those branches of study described as the necessary preparation for a medical education, and having, as the certification of the same, received the degree of *Inceptor-Graduate* of *Mathematical* and *Physical Science*.

4. "That the *first course* of studies properly medical should commence at eighteen, in anticipation of the degree of inceptor graduate of physiology, and should occupy three years."

The first year is to be devoted to an attendance on lectures on anatomy and physiology, chemistry, materia medica, and botany; not omitting practical dissections. Second year the same, with the addition of an attendance on lectures on the practice of medicine, surgery, and midwifery; clinical lectures, hospital practice, and the registering of medical cases. Third year the same, with the addition of medical jurisprudence, clinical surgery, hospital surgical practice, and the registering of surgical cases. At the expiration of three years after the presence of the student at the different lectures has been registered, his absences duly noticed, and his diligence tested by frequent examinations, his proficiency may be ascertained in an examination conducted by the college jointly. If the candidate be successful, he is to receive the degree of "inceptor graduate of physiology." "This," says Mr. GREEN, "comprises the education of the general practitioner"! But our author has not yet done with him, for the poor graduate is then to be "subjected to an examina- "tion before the governing council of the "medical profession, which, having been "satisfactorily passed, he may, at the age

"of twenty-one, become enrolled as a "*licentiate* of the *medical profession*, and "receive his diploma as a licensed gene- "ral practitioner."

In acknowledging that this scheme is incomplete, — though, it must be confessed, not from its simplicity of structure, —Mr. GREEN offers a second curriculum of medical studies, which is to occupy three additional years. Those who pursue their studies throughout this period, and succeed in passing an examination before a faculty of the College, are to be rewarded with the title of "Graduate of Physiology."

After this medley of plot and counterplot, we were prepared to find that Mr. GREEN does not contemplate "any change "in the practical distinctions which the "conveniences of society have unalter- "ably established of physician and sur- "geon." Accordingly, the title which is to be conferred on the "GRADUATE OF PHYSIOLOGY" by the diploma of the general council of the medical profession, is to be that of "Doctor in Medicine" or "Master in Surgery," —these differences of title being expressly chosen "to mark for the public the practical distinctions intended." There are, however, in addition, to be "Doctors in Medicine and Midwifery," and "thus," exclaims our mystified author, "the practical distinctions in the medical profession would be,

"1. *Licentiates in Medicine, Surgery, and Midwifery*, or General Practitioners.
"2. *Doctors in Medicine*, or Physicians.
"3. *Masters in Surgery*.
"4. *Doctors in Medicine and Midwifery*."

The distinctions, however, are not to end at this point, as there are to be professors and private teachers, — both classes to be elected by the general council of the medical profession. Hence Mr. GREEN's proposal for amalgamating the interests of the profession,—for rendering medical education more harmonious and efficient, stands thus:—

There is to be a national medical university established in the Metropolis. The institution is to embrace two departments, one senior, the other junior. The students of the first division are to be admitted to the second on proving that they are masters of a "correct style in grammar," and that they have been "subjected to the discipline of the pure sense." On emerging, after an examination conducted before the joint faculties, from the senior department, the students are to be divided, by characteristic degrees, into four classes of graduates, when, on submitting to another examination before the national council, they are to be ranged into four classes of practitioners,—"and thus," exclaims our reformer, "whilst the plan suggested will "ever preserve hope for the lowest, it "would be the means of fraternising all, "and of producing a bond of unity "throughout the medical profession."—A precious bond of unity, truly, composed, as it is, of ten crazy unconnected parts!

Mr. GREEN next enters on the question of constructing the governing body, —a body to be styled "A National Council of Medicine," whose powers are to be exercised with a view to the "*whole* regulation and conduct of the profession." The entire scheme, we should remark, is constructed for the regulation of the medical profession of *England*. The "circle" of Mr. GREEN does not extend to Ireland and Scotland. He first attempts to explain, briefly, the duties of the governing body, and then proceeds to develop the principle on which the members of the National Council should be elected. And what, reader, think you, is that principle? Absolutely the *self-elective!* But you must read the very words of Mr. GREEN.

"Our proposal then, upon the foregoing grounds, is that the governing body should *select* and *appoint its members*, but

under a known responsibility to the crown for the conscientious discharge of its functions."

Thus we are presented with the disgusting front of the beast of monopoly, and a single glance discovers the cloven foot.

"The doctors of medicine and masters of surgery may be distinguished as the *medical* and *surgical* FACULTIES. And for these the nuclei have been already formed in the existing *colleges* of *physicians* and *surgeons*, and only such changes in their constitution being required, as the system here offered implies, we would wish still to see these bodies regulating respectively the departments of the profession which they represent; whilst the proposed reformation would be freed from the disadvantages of innovation in a very material point, and the changes we here contemplate greatly facilitated."

If Mr. GREEN and those with whom he is in the habit of acting, can but succeed in maintaining the integrity of the College of Physicians, as well as that of the College of Surgeons, we fear that their labours would then cease in the cause of medical reform. But, as we at first stated, it is not our intention on this occasion to engage in a discussion on the merits or the demerits of the suggestions which Mr. GREEN has offered to the legislature, in order to aid the government in producing a sound plan for the construction of a new medical constitution. Our object has been to present our readers with an analysis of Mr. GREEN's scheme, and when we have stated, that, in addition to the Colleges of Physicians and Surgeons, he would institute a third faculty, one for the examination of candidates in midwifery, and that the great council of the medical profession is to consist of the "Professors," "Doctors in Medicine," "Masters in Surgery," and "Doctors in Medicine and Midwifery," all of whom are to be elected by the councillors themselves, our present object will be accomplished.

Mr. GREEN professes to reject the system which is now in operation between the Colleges of Physicians and Surgeons and the Hospitals, and yet he has adopted that very system as his bond, as we shall prove, in our next number, by comparison of what actually *are* the workings of the one, with what *must* be the operation of the other, if such a mass of folly could be adopted by an intelligent legislature.

IN a petition which Mr. STEVENSON, surgeon, of the city of Limerick, has forwarded to the House of Commons, we find the following statements:—

"That your petitioner has been practising the art of apothecary during a period of twenty-two years, and has gone through the entire *curriculum* of studies required for a surgical diploma—which diploma he received from the Faculty of Physicians and Surgeons of Glasgow, thereby qualifying him to practise *surgery* and *pharmacy*.

"That your petitioner, on the faith of this legal qualification, as well as long practical experience, embarked, in the year 1831, a very large capital in the establishment of a medical concern in the city of Limerick. But your petitioner has been much impeded in his business by the members of the Apothecaries' Hall of Ireland, inasmuch as this body refuse to recognise his qualifications, or even to allow him an examination at their Hall, unless your petitioner commence his profession anew, and subject himself to an apprenticeship of seven years with a licentiate of their own corporation."

If the incorporated corruptionists were such blockheads as to believe that so odious a state of the law as is here exhibited to view could be maintained by any species of stratagem, it is quite certain that their stupidity is only equalled by their knavery. When Mr. STEVENSON applied to the Apothecaries' Company of Dublin, and "earnestly requested to be admitted to an examination at their Hall," what was the reply communicated by their secretary?

"Apothecaries' Hall, Feb. 24th, 1834.

"Sir,—Herewith I send you a copy of our regulations, and am, your obedient servant,

"WILLIAM MADDEN, Sec.

"To John Stevenson, Esq., George Street, Limerick."

Such was the notification of the Company to a gentleman who had been in practice as an apothecary for twenty-two years on the authority of a diploma which he had obtained from the Faculty of Physicians and Surgeons of Glasgow!

The pupils of the *London Hospital*, in common with the students of many other establishments, continue to press their complaints against the medical officers for negligence and irregularities of attendance. If the pupils be made to pay heavily for witnessing the practice of the hospitals, on what pretence, we ask, can the surgeons withhold from those gentlemen the opportunity of witnessing, *to the fullest possible extent*, without inconvenience to the patients, the treatment of the diseases which fall under their care? The *time* of the student is everything to him, for on a just use of it must depend the success of his professional life. Yet many of the officers of our hospitals, after pocketing an enormous amount of fees, pay not the slightest attention to those individuals from whom it has been extorted under the sanction of the infamous by-laws constructed by our medical colleges. In several of the hospitals post-mortem examinations are conducted without giving any previous notice to the students, and with the grossest irregularity. In others, the days of operating are changed suddenly, and thus the students are prevented from deriving from those proceedings that information which they were led to expect they should obtain from attending on a metropolitan hospital. If all the officers be not conscience-stricken, at least Mr. Scott and Mr. Luke, of the London Hospital, will understand why the students of that hospital complain that operations there have lately been performed on "irregular days," and after giving only some three or four hours previous notice.

It will be seen by a brief notice in another part of our Journal, that Mr. Hale Thompson, who valiantly withstood the pistol-shots of Dr. Forbes, on behalf of Mr. Guthrie, has been elected assistant-surgeon at the *Westminster Hospital*. Having formerly endeavoured to slaughter a fellow-creature, he is now rewarded for his services and excellent disposition, by being made a medical officer of a charitable institution. The treasurer of the hospital most strenuously supported Mr. Thompson, and Mr. Thompson is about to support the daughter of the treasurer before the altar of Hymen. Thus are the interests of the public sacrificed! With what dread must such men view the proceedings of the Parliamentary Committee!

A subject of interest will be discussed at the *Westminster Medical Society* this evening, Saturday the 19th. It is but justice to the professors of the University to state, that they are not endeavouring to obtain any exclusive privileges. It should be understood, that a charter of incorporation does not necessarily create a beneficial monopoly. The late proceedings in the city were not prompted by the leading men in the University, who, without exception, are anxious that the medical department of their institution should be governed by those laws which it is to be hoped will soon be enacted for the benefit of the entire profession. We are glad, however, that this discussion is to take place, as the result, we are quite certain, will furnish additional evidence of the odium in which the principle of exclusiveness is held by all enlightened men. The following resolution was moved by

Dr. Epps at the Society on Saturday last, when the Society agreed to take the subject into consideration at its next meeting:—

"That the bestowal of a charter upon any university, with power to the medical faculty thereof to confer medical degrees, will be a most injurious manifestation of the exclusive principle, which by conferring on the lecturers (themselves constituting the medical faculty) an exclusive advantage,—an advantage, quite independent of their skill as lecturers,—will not only prevent the exercise of a fair competition between those lecturers and the lecturers of other institutions not thus favoured, but will tend, by diminishing this competition, to injure the university itself, by inducing students to enter thereat, not so much from the excellence of the lectures therein delivered, but on account of the twofold circumstance, that attendance on the lectures of such lecturers have adjoined to them the peculiar privilege of 'qualifying' candidates for an examination for a degree, and that the lecturers themselves constitute the medical faculty to examine their own pupils, thus removing so many motives to exertion from the minds of the lecturers themselves."

We have inserted elsewhere (page 120) two petitions from the medical coroners and medical practitioners of Montgomeryshire. It is literally impossible that the Bill now before the House can be passed into a law.

Doctor Clough, of Upper Norton Street, deviating from the example of many of our hospital physicians and surgeons, who traffic in the diseases of patients, has presented to the *University of London*, his very valuable collection of preparations. It is with sincere pleasure that we record this act of beneficence.

The mockery, called in France a "concours," was opened on Thursday last, for the election of a Professor of *Clinical Accouchemens*. This is the only point in which the medical school of Paris was deficient, and the unremitting exertions of the dean, M. Orfila, have at last achieved their object. The candidates are, M. Dubois, already professor at the *Maternité*, and MM. Velpeau, Hatin, Baudelocque, and Calombre. Public favour bears strongly to the side of M. Velpeau, who has been so long known as the author of one of the best elementary works on midwifery; but it seems that personal interest is likely to sway the balance in another direction,—so corrupt is the regime under whose domination all the concours are enacted. One of the candidates expressed himself to-day in the following words to one of our friends. "If you sell places in England, we give them here, and Paul Dubois will be the new professor."

Baron Dupuytren, on reassuming his duties as clinical lecturer at the *Hôtel Dieu* last week, was received by a numerous class with warm plaudits. He has again commenced a course of lectures on the practice of surgery, a department of instruction in which he is unequalled for the variety of his matter, and the clear methodical manner in which he treats his subjects. He will lecture only twice a week during the present summer. The service of the intervening days will be performed, as usual, by M. Sanson.

The sittings of the Parliamentary Medical Committee were resumed this week, and have been continued up to the time of our going to press. The following additional witnesses were examined. The evidence of Sir David Barry was concluded on Tuesday:—

Tuesday.—Sir George Tuthill; Dr. Paris; Dr. Hume (of Curzon-street); Dr. H. Holland.

Wednesday.—Dr. Stanger; Dr. Tweedie; Dr. Copland.

Thursday.—Dr. Henderson; Dr. Farre; Dr. Birkbeck; Dr. James Johnson; Dr. James Clark.

Friday.—Dr. Ramadge; Dr. Haviland (of Cambridge); Mr. Wilcock (barrister); Mr. Phillips (chemist); Mr. Cooper (chemist); Mr. Morson (chemist).

The Committee will continue to sit from twelve till four o'clock during five days of the ensuing week. It is not yet exactly known who will be called besides those already mentioned.

WESTMINSTER HOSPITAL.—ELECTION OF AN ASSISTANT-SURGEON.

A GREAT sensation has been excited in Westminster by this election. Mr. J. MAITLAND, late house-surgeon, and formerly apprentice to Mr. WHITE, was supported by the medical interest; Mr. HALE THOMPSON by the treasurer, and the anti-medical party. So active a contest has not occurred in this institution since the collision between Mr. LYNN and the late Mr. MORELL, which occurred in 1786. At the conclusion the poll stood thus:—

For Mr. Thompson, 169.
Mr. Maitland .. 100.

The votes were taken in the Board-room of the New Hospital, which was thrown open for inspection on this occasion.

On Thursday week the appalling operation, known by the title of the *Cæsarean section*, was performed with success by Mr. T. L. Greaves, of Great Easton, Rockingham. On Tuesday last both mother and infant were doing well. The skilful operator has promised to send us an account of the details.

The letter of *Mr. Costello*, explanatory of his successful treatment in the case of Fisher, who was cut, and declared that he WAS ——— in *St. George's Hospital*, together with some remarks on the report which Mr. HAWKINS has now made respecting the operation, shall be published in the next LANCET.

NOTE FROM THE SECRETARY OF THE WESTMINSTER MEDICAL SOCIETY.

To the Editor of THE LANCET.

SIR,—I was surprised to find that a place was given in the pages of your journal to a mere hearsay report of some recent proceedings of the *Westminster Medical Society* which affects the independence, and even the integrity, of my character as one of its secretaries; and, consequently, I feel called upon to defend myself against the statements furnished by your reporter. Had that gentleman been present himself at the meeting when the subject of the minutes was discussed, I doubt not but that a different report would have been furnished. It is very incorrectly stated, that "the secretary had conveniently omitted all mention of that portion of the debates which occupied three-fourths of the time of the Society." Now so far from this being the case, I may state, that though the debate was noticed with the same brevity as always characterizes my minutes, when they refer to such subjects of discussion as either do not terminate in a distinctive resolution, or do not refer to the advancement of medical science, the primary object of the Society; yet that the report given was of such a nature as to satisfy a great proportion of the members present; and had I been allowed (as I subsequently was) by the President for the evening to have explained at once that I had acted on the occasion in conformity with my uniform practice, I have no doubt but that the matter would have speedily dropt, which I have since learned to be the opinion of many of the oldest members of the Society.

As to the insinuation contained in the last sentence, emanating as it does from an anonymous writer, it would be altogether beneath my notice, were it not for the effect it may possibly have upon the minds of others. What I have above stated will, I conceive, be a sufficient refutation of this, with the addition, that the minutes were written out on the same evening that the meeting took place, and that I did not exchange a single word respecting them with any member of the Society, until they were read, as is usual in the Committee, where they were confirmed, as they subsequently were, in the Society, with the addition of a short clause, after several motions proposing their being expunged, &c., had successively been lost. I shall feel obliged by insertion being given to the above, and am, yours very respectfully,

JOHN THURNAM.

9, Gerrard Street, Soho.

CORRESPONDENTS.

Several students of *Guy's Hospital* complain of the repeated non-attendance of Mr. KEY at their annual dinner. Why are the students such geese as to pay their guineas every year to be insulted? These dinners are invariably got up by the toad-eaters of the medical officers.

The communication of our *Edinburgh Correspondent* reached us too late for the present number. It shall appear next week.

An Observer at St. Thomas's.—We are acquainted with the name of the dresser, but hope that the report is unfounded. If the statement be correct, and the man dies from puncture of the radial artery, it is very likely that a verdict of manslaughter will be returned against the dresser. The surgeon that entrusted such a dresser with the duties of phlebotomising, ought to be indicted for the offence. If delinquents there be, the exposure of their names would effect some good.

We have received the communications of *Mr. C. Taylor*—*An Independent Physician*—*Mr. A. Lambert.*

We cannot notice the case mentioned by *A Constant Reader*, unless many more particulars, and the whole of them fully authenticated, be submitted to our examination.

BOOKS RECEIVED.

Hortus Medicus, or Figures (coloured or plain) and Descriptions of the more important Plants used in Medicine, or possessed of Poisonous Qualities; with their medical properties, chemical analysis, &c. By George Graves, F.L.S. The chemical and medical departments by John Davies Morries, M.D., F.R.C.P.E. Edinburgh: A. and C. Black; London: Longman and Co.